WRDC-TR-90-8007
Volume V
Part 14

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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 14 - Neutral Data Manipulation Language (NDML) Precompiler
Transform NDML Request from External Schema to Conceptual Schema
Product Specification

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M. Apicella, J. Slaton, B. Levi

Control Data Corporation
Integration Technology Services
2970 Presidential Drive
Fairborn, OH 45324-6209

September 1990

Final Report for Period 1 April 1987 - 31 December 1990

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WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6533

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This specification establishes the design of Function PRE4, "Transform ES/CS", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM program office.

BLOCK 11:

INTEGRATED INFORMATION SUPPORT SYSTEM
Vol V - Common Data Model Subsystem

Part 14 - Neutral Data Manipulation Language (NDML)Precompiler Transform
NDML Request from External Schema to Conceptual Schema Product
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FOREWORD

This technical report covers work performed under Air Force Contract F33600-87-C-0464, DAPro Project. This contract is sponsored by the Manufacturing Technology Directorate, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Bruce A. Rasmussen, Branch Chief, Integration Technology Division, Manufacturing Technology Directorate, through Mr. David L. Judson, Project Manager. The Prime Contractor was Integration Technology Services, Software Programs Division, of the Control Data Corporation, Dayton, Ohio, under the direction of Mr. W. A. Osborne. The DAPro Project Manager for Control Data Corporation was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test, and demonstration of the Integrated Information Support System (IISS). The IISS technology work comprises enhancements to IISS software and the establishment and operation of IISS test bed hardware and communications for developers and users.

The following list names the Control Data Corporation subcontractors and their contributing activities:

SUBCONTRACTOR	ROLE
Control Data Corporation	Responsible for the overall Common Data Model design development and implementation, IISS integration and test, and technology transfer of IISS.
D. Appleton Company	Responsible for providing software information services for the Common Data Model and IDEF1X integration methodology.
ONTEK	Responsible for defining and testing a representative integrated system base in Artificial Intelligence techniques to establish fitness for use.
Simpact Corporation	Responsible for Communication development.
Structural Dynamics Research Corporation	Responsible for User Interfaces, Virtual Terminal Interface,and Network Transaction Manager design, development, implementation, and support.
Arizona State University	Responsible for test bed operations and support.

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SECTION 1

SCOPE

1.1 Identification

This specification establishes the design of Function PRE4, "Transform ES/CS", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM program Office. This CI constitutes one of the subsystems of the Common Data Model Processor (CDMP).

1.2 Functional Summary

The purpose of this Computer Program Configuration Item (CPCI) is to convert an NDML or SQL request, expressed in an external schema, and to terminate one or more NDML or SQL requests expressed in conceptual schema terms.

The following functions will be performed by this CPCI:

1) Translate each user view into the corresponding entity classes and each data item into the corresponding attribute use class;

2) Identify the relational join operations needed to construct each user view table; and

3) Identify the integrity tests that will be employed with each NDML or SQL update request.

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SECTION 2

DOCUMENTS

2.1 Reference Documents

1. ICAM Documentation Standards: IDS15012000A, 28 December 1981.

2. D. Appleton Co., CDM Administrators Manual; UM620141000, March, 1984.

3. D. Appleton Co., CDM1-IDEF, Model of the Common Data Model; CCS620141000, 15 May, 1985.

4. D. Appleton Co., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDML Precompiler; DS620141200, October, 1984.

5. D. Appleton Co., Embedded NDML Programmer's Reference Manual; PRM620141200, March, 1985.

6. Softech, Inc., NTM Programmer's Guide; UM620140001, July, 1984.

7. Control Data Corp., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration item: NDDL Command Processor: DS620141100, June 1985.

2.2 Terms and Abbreviations

Attribute Use Class: (AUC)

Conceptual Schema: (CS)

Common Data Model Processor: (CDMP)

Common Data Model: (CDM) Describes common data application process formats, form definitions, etc, of the IISS and includes conceptual schema, external, internal schemas, and schema transformation operators.

Data Field: (DF) An element of data in the external schema. It is by this name that an NDML programmer reference data.

Database Management System: (DBMS)

Distributed Request Supervisor: (DRS) This IISS CDM subsystem configuration item controls the execution of distributed NDML queries and non distributed updates.

Domain: A logical definition of legal attribute class values.

Domain Constraint: Predicate that applies to a single domain.

External Schema: (ES)

Forms: Structured views which may be imposed on windows or other forms. A form is composed of fields where each field is a form, item, or window.

Forms Processor: (FP) A set of callable execution time routines available to an application program for form processing.

Internal Schema: (IS)

Integrated Information Support System: (IISS) A test computing environment used to investigate, demonstrate and test the concepts of information management and information integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous databases supported by heterogeneous computers interconnected via a local Area Network.

Mapping: The correspondence of independent objects in two schemas: ES to CS or CS to IS.

Network Transaction Manager: (NTM) Performs the coordination, communication and housekeeping functions required to integrate the application processes and system services resident on the various hosts into a cohesive system.

Neutral Data Manipulation Language: (NDML) A language developed by the IISS project to provide uniform access to common data, regardless of database manager or distribution criteria. It provides distributed retrieved and single node updates.

ORACLE: Relational DBMS based on the SQL (Structured Query Language, a product of ORACLE Corp, Menlo Park, CA). The CDM is an ORACLE database.

Parcel: A sequential file containing sections source code of the input application program.

Request Processor: (RP) A COBOL program that will satisfy a retrieval or update NDML subtransaction against a particular Database Management System.

User Interface: (UI) Controls the user's terminal and interfaces with the rest of the system.

Virtual Terminal Interface: (VTI) Performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by UI software which constitutes the Virtual Terminal Definition. Specific terminals are then mapped against the Virtual Terminal software by specific software modules written for each type of real terminal supported.

SECTION 3

REQUIREMENTS

3.1 Structural Description

A graphic portrayal of this CPCI is included in Section 3.10. This chart shows the hierarchical relationship of each module making up this CPCI.

This CPCI uses a number of lower level modules to handle specific operations such as:

1. Verifying the user view (CDVIEW).
2. Verifying user data items (CDEMD).
3. Determining all data items in a view (CDEMDA).
4. Match view names with view abbreviations (CDABVW).
5. Determine if a partial entity class was inserted (CDPTEC).
6. Determine if a data item is mapped to conceptual schema (CDPDI).
7. Look up meta data for a conceptual attribute (CDCMD).
8. Determine if a view maps to multiple entities (CDNNEC).
9. Develop type 1 integrity test (CDINEC, CD1RIT).
10. Develop key uniqueness integrity test (CDKYUQ).
11. Check for modification of a partial inherited key class (CDMPIK).
12. Develop type 2 integrity test (CD2RIT).
13. Add rows to the CS_ACTION_LIST (CDACAL).
14. Add a row to the CS_ACTION_LIST and CS_QUALITY_LIST for a type 1 integrity test (CDACAQ).
15. Add a row to the TEMP_XFORM_LIST (CDATXL).
16. Retrieve a tag name (CDGTN).
17. Retrieve type 2 qualifications for a view (CDG7VW).
18. Verify join to target user view for delete and modify (CDJUV).
19. Build ES/CS Action List entries (CDMQAL).
20. Populate Boolean List (CDPBL).

21. Transform ES schema to CS (CDPRE4).

22. Obtain relation class number for outer join (CDRCNR).

23. Get the relation class and owner tag of an inherited attribute (CDRCTG).

24. Retrieve all tags to which a view maps (CDTGVW).

25. Update a row of the TEMP_XFORM_LIST (CDUTXL).

26. Verify a numeric value (CDVNV).

27. Verify that a TEMP_AUC is not a key class member (CDVTCK).

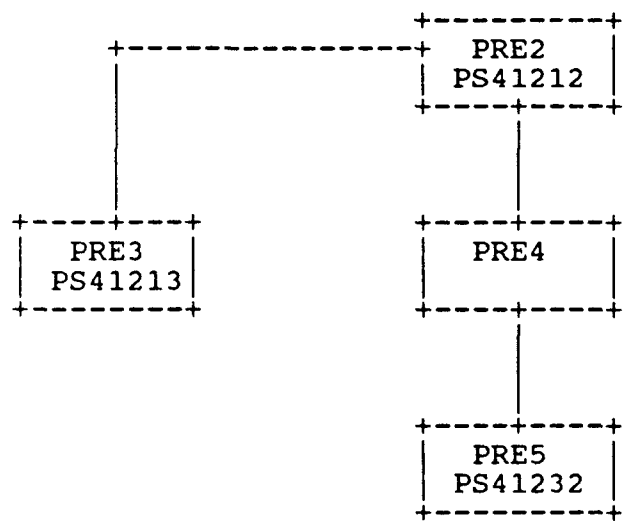
3.2 Functional Flow

This CPCI implements the logic defined in the Development Specification for this CPCI. Details of inputs/outputs and relationships between modules are to be found in Section 3.10.

This CPCI has been designated to operate in a batch or interactive mode. It must use the ORACLE DBMS installed on a DEC VAX computer.

3.3 Interfaces

The following diagram depicts the interface of PRE4 with other CPCI's in the system.



3.3.1 Inputs/Outputs

The following table depicts the inputs and outputs of this CPIC. A detail description for each item can be found in the DS for this CPCI.

INPUT	OUTPUT
ES Qualify List	Return Status
ES Action List	
CS Qualify List	
User View Abbreviation List	
CS Action List	
Parcel 1 File Pointer	
Parcel 2 File Pointer	
Parcel 3 File Pointer	
Parcel 4 File Pointer	
Error File Pointer	
Host of the precompiler	
Host the AP is to run on	
Source Language	
Code generator table	
User Module Identification	
Logical Unit of Work Name	
NDML Counter	
Boolean List	
Result Field Table	
JQG Attribute Pair List	
Block Stack	
NDML Stack	
First Inner Select	
Fortran Variable Table	
Subroutine Language	
Embedded Language	
Cursor Table	
Whenever Table	

3.4 Program Interrupts

Not applicable to this CPCI.

3.5 Timing and Sequencing Description

This CPCI is called for each NDML or SQL statement parsed by PRE3 and identified to be semantically correct by PRE2. Thus, PRE4 may execute many times in a precompiler run. PRE 4 in turn calls PRE5 for each conceptual request. A conceptual request is either the original user NDML or SQL request or referential integrity tests, which are implemented as a conceptual schema retrievals.

3.6 Special Control Features

Not applicable to this CPCI.

3.7 Storage Allocation

3.7.1 Database Definition

The database used by this CPCI is the Common Data Model (CDM) database. This model is defined by the CDM1, the IDEF-1 model of the CDM, Reference Document Number 3.

3.7.1.1 File Description

No permanent files have been defined for this CPCI. It may use temporary scratch files for such things as generated program source code or temporary query results.

3.7.1.2 Table Description

All tables used by this CPCI have been defined by the Development Specification for this CPCI.

3.7.1.3 Item Description

Not applicable to this CPCI.

3.8 Object Code Creation

The object code for this CPCI will be created by the system integration test team by using defined IISS Software Configuration Management procedures. This CPCI will use the COBOL language compilers.

3.9 Adaptation Data

This CPCI has been coded using ANSI COBOL language. The intent was to provide a transportable system. Any system environment supporting this language, a virtual memory management scheme, the ORACLE Database Management System should be able to support this CPCI. Every possible attempt has made been to localize and identify any machine or environment dependent modules through the original design of the IISS and application of Configuration Management Procedures.

3.10 Details Design Description

The following sections have been computer generated for this CPCI.

3.10.1 Where Include File Used List

The following lists each include file in the documentation group and all the modules documented in this specification which include them. The purpose of each module is listed as well.

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
ERRCDM	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDATXL
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDMQAL
	CDNNEC
	CDPBL
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
ERRFS	
	CD1RIT
	CD2RIT
	CDACAQ
	CDCMD
	CDEMD

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDVIEW
	CDVTGK
EOD	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
TXLIST	

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CD1RIT
	CDACAL
	CDACAQ
	CDATXL
	CDINEC
	CDKYUQ
	CDMPIK
	CDPRE4
	CDPTEC
	CDTGVW
	CDUTXL
	CDVTGK
ESAL	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDEMDA
	CDINEC
	CDKYUQ
	CDMQAL
	CDNNEC
	CDPRE4
	CDPTEC
	CDVTGK
ESQUAL	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDJUV

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
UVABBR	
	CD1RIT
	CD2RIT
	CDABVW
	CDACAQ
	CDGTVW
	CDINEC
	CDJUV
	CDKYUQ
	CDPRE4
CGTABLE	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
APL	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
RFTABLE	
	CD1RIT
	CD2RIT

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
BLSTACK	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
FORVAR	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
CSAL	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDINEC
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
CSQUAL	
	CD1RIT
	CD2RIT

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDACAQ
	CDGTVW
	CDINEC
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
CURTAB	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
WHENTAB	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
ERRPRO	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDATXL
	CDCMD
	CDEMD
	CDEMDA
	CDGTN

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDMQAL
	CDNNEC
	CDPBL
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
BOOLST	
	CD2RIT
	CDACAQ
	CDGTVW
	CDKYUQ
	CDPBL
	CDPRE4
NDMLSTK	
	CDEMDA
	CDPRE4
CHKCDM	
	CDMQAL
	CDPBL
CSQVAR	
	CDPRE4
DELCAT	

DOCGROUP PS41231 Where-include-file-used List

Include File	Module Name
	CDPRE4
TYP2TB	
	CDPRE4
TJLIST	
	CDPRE4

3.10.2 Where External Routine Used List

The following lists each external function or routine in the documentation group and all the documented modules which call it. The purpose of each module is listed as well.

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
SQLSCA	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLBS1	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLSCH	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLSCC	
	CD1RIT

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLTFL	
	CD1RIT
	CDCMD
	CDEMD
	CDGTN
	CDGTVW
	CDPDI
	CDPRE4
	CDRCNR
	CDRCTG
	CDVIEW
	CDVTGK
SQLOPN	

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CD1RIT
	CDCMD
	CDEMD
	CDGTN
	CDGTVW
	CDPDI
	CDPRE4
	CDRCNR
	CDRCTG
	CDVIEW
	CDVTGK
SQLOSQ	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
SQLADR	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLAB1	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLEXE	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLAD1	
	CD1RIT

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLFCH	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
ERRPRO	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDATXL
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDMQAL
	CDNNEC
	CDPBL
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CDVTGK
SQLTOC	
	CD2RIT
	CDEMDA
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDTGVW
SQLCLS	
	CD2RIT
	CDEMDA
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPTEC
	CDTGVW
CDPRE5	
	CD2RIT
	CDACAQ
	CDKYUQ
	CDPRE4
CDCAT	
	CDACAL
RPTERR	
	CDEMD

DOCGROUP PS41231 Where-external-routine-used List

System Module	Module Name
	CDGTN
	CDJUV
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDVIEW
	CDVNV
	CDVTGK
CDIDIU	
	CDPRE4
CD2NEC	
	CDPRE4
CDCRIT	
	CDPRE4
CDAUC	
	CDPRE4
CDERC	
	CDPRE4
CDASEL	
	CDPRE4
CDELIS	
	CDPRE4
CD2SEL	
	CDPRE4
CDZDEL	
	CDPRE4

3.10.3 Main Program Parts List

The following lists each Main Program in the documentation group and all the modules which are called either by that module itself or by any of the documented modules which it calls. It is possible for a non-main module to be listed more that once if it is called by multiple modules. The called modules, in this case known as program parts, are marked as to whether they are documented here. If so, the phrase "well-defined module" appears by the module name, if not it is an "external "routine". The Purpose of the Main Program module is listed as well.

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
CD1RIT		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	CDACAQ	Well-defined module
	ERRPRO	External routine
CD2RIT		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDPRE5	External routine
	CDCMD	Well-defined module

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	CDMQAL	Well-defined module
	CDPBL	Well-defined module
CDABVW		
CDACAL		
	ERRPRO	External routine
	CDCAT	External routine
CDACAQ		
	ERRPRO	External routine
	CDPRE5	External routine
	CDCMD	Well-defined module
	CDMQAL	Well-defined module
	CDPBL	Well-defined module
CDATXL		
	ERRPRO	External routine
CDCMD		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDEMD		
	SQLSCA	External routine
	SQLBS1	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine
CDEMDA		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
CDGTN		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine
CDGTVW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDCMD	External routine
CDINEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	CDACAQ	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
CDJUV		
	RPTERR	External routine
CDKYUQ		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDPRE5	External routine
	CDCMD	External routine
	CDMQAL	Well-defined module
	CDPBL	Well-defined module

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
CDMPIK		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	RPTERR	External routine
	CDGTN	External routine
CDMQAL		
	ERRPRO	External routine
CDNNEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLCLS	External routine
	RPTERR	External routine
CDPBL		
	ERRPRO	External routine
CDPDI		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDPRE4		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	ERRPRO	External routine
	SQLTOC	External routine
	CDPRE5	External routine
	CDCMD	External routine
	CDMQAL	External routine
	CDPBL	External routine
	RPTERR	External routine
	CDGTVW	External routine
	CDIDIU	External routine
	CDVIEW	Well-defined module
	CDABVW	External routine
	CDEMDA	External routine
	CDEMD	External routine
	CDPDI	External routine
	CDPTEC	Well-defined module
	CDINEC	External routine
	CD2NEC	External routine
	CDKYUQ	External routine
	CDACAL	External routine
	CDNNEC	External routine
	CDATXL	External routine
	CDRCTG	Well-defined module
	CDUTXL	Well-defined module
	CDVTGK	Well-defined module
	CDMPIK	External routine
	CD1RIT	External routine
	CDCRIT	External routine
	CDJUV	External routine
	CDAUC	External routine
	CDTGVW	Well-defined module
	CD2RIT	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	CDERC	External routine
	CDASEL	External routine
	CDELIS	External routine
	CD2SEL	External routine
	CDZDEL	External routine
	CDVNV	Well-defined module
	CDRCNR	Well-defined module
CDPTEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	RPTERR	External routine
CDRCNR		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDRCTG		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDTGVW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLTOC	External routine
	SQLCLS	External routine
	CDCMD	External routine
	CDATXL	External routine
CDUTXL		
CDVIEW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine
CDVNV		
	RPTERR	External routine
CDVTGK		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine

3.10.4 Module Documentation

The following documentation describes information which is specific to each individual module in the documentation group being documented in this specification. It provides a compact way of getting information that would be otherwise buried within each module's source code.

The specific items in this module documentation have the following meanings:

NAME:	Name of program Module.
PURPOSE:	Purpose of Module as detailed in the source code.
LANGUAGE:	Programming language source code is written in. The choices are: VAX-11 FORTRAN C (I/S-1 Workbench 'C') VAX-11 COBOL
MODULE TYPE:	Whether a Program, Subroutine, or Function.
SOURCE FILE:	Name of Source File from file specification.
SOURCE FILE TYPE:	Source File Extension from file specification.
HOST:	Whether this is a host-dependent routine (VAX or IBM) or blank if host-independent.
SUBSYSTEM:	IISS sub-system this file resides in.
SUBDIRECTORY:	Sub-directory of that subsystem in which this file resides.
DOCUMENTATION GROUP:	Name of documentation group of which this source file is a member.
DESCRIPTION:	A description of the module as otained from the source code.
ARGUMENTS:	The arguments with which this routine is called if it is a Subroutine or a Function.
INCLUDE FILES:	A list of all the files that are included into this module as well as their purposes.
ROUTINES CALLED:	Subroutines or Functions, either documented or external, called by this module, if any.

CALLED DIRECTLY BY: The documented routines which call this module, if any.

USED IN MAIN PROGRAM(S): The documented Main Programs which contain this module in their parts list according to the list in section 3.10.3.

The Module Documentation is arranged alphabetically according to Module Name.

DOCGROUP PS41231 Module Documentation

NAME: CD1RIT
PURPOSE: PERFORMS SEARCH OF LINK_RELATION TO EXTRACT IND EC_NO
FOR TYPE 1 R.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CD1RIT
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF LINK_RELATION TABLE TO EXTRACT THE
INDEPENDENT EC NO WHICH CORRESPONDS TO EACH TEMP-RC-NO. CALL
CDACAQ TO FILL ROWS OF CS-ACTION-LIST AND CS-QUALIFY-LIST
AND GENERATE A TYPE 1 REFERENTIAL INTEGRITY TEST.
MODIFIED FOR EMBEDDED SQL -- 19 MAY 1986
ADD LUW-NAME AS PASS-THROUGH PARAMETER -- 23 MAY 1986
CHANGED TO DO LOOKUPS INTO LINK RELATION -- 1 MAY 1989
FOR EACH NON-ZERO RELATION CLASS, OBTAIN ALL INDEPENDENT
ENTITY CLASS NUMBERS. FOR EACH UNIQUE INDEPENDENT
ENTITY CLASS NUMBER, CALL CDACAQ TO EVENTUALLY
GENERATE A TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD

FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
LUW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
APL
RFTABLE
BLSTACK
FORVAR

CSAL
CSQUAL
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
CDACAQ
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CD2RIT
PURPOSE: SETS UP TYPE 2 REFERENTIAL INTEGRITY CHECK
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CD2RIT
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL IN CS ACTION LIST AND CS-QUALIFY LIST FOR TYPE 2 RI
TEST. ON EXIT, RESET CSQ-USED TO ITS VALUE ON INPUT.
MODIFY FOR EMBEDDED SQL -- 23 MAY 1986
CHANGE NDML-COUNTER AND NDML-HOLD TO PIC 9(6) -- 23 MAY 1986
CHANGE VH-COUNTER TO PIC X(6) -- 23 MAY 1986
DELETE CE-WORK-LIST AND USER-ERROR-COUNT -- 23 MAY 1986
ADD BOOLEAN-LIST AND LUW-NAME -- 23 MAY 1986
ADD CDMQAL AND CDPBL CALLS -- 23 MAY 1986
CHANGE CDPRE6 CALLS TO CDPRE5 CALLS -- 23 MAY 1986
MOVE U TO CSQ-SOURCE (CS-QUALIFY) -- 4 MAR 1987
CHECK FOR "V" IN CSQ-SOURCE (CS-QUALIFY) BEFORE
MOVING COUNTER TO CSQ-VARIABLE -- 23 JUN 1987
FOR EACH INDEPENDENT ENTITY OF THE ENTITY TO BE
DELETED, GENERATE A TYPE 2 REFERENTIAL INTEGRITY
TEST BY POPULATING THE CS-ACTION LIST AND ADDING TO
THE CS-QUALIFY AND BOOLEAN LISTS.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
IND-EC-NO	DSPLY[S9(4)]

ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
BOOLEAN-LIST	RECRD
LUW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ESAL
ESQUAL
UVABBR
CGTABLE

APL
RFTABLE
BLSTACK
FORVAR
CSAL
CSQUAL
BOOLST
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDABVW
PURPOSE: CDABVW-GET THE VIEW NUMBER GIVEN THE USER ENTERED
ABBREVIATION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDABVW
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

SCAN THE UV-ABBR-LIST SEARCHING FOR A UVABBR MATCHING THE INPUT ARGUMENT, ABBREV. IF FOUND, RETURN THE CORRESPONDING VIEW NUMBER AND UV-INDEX, OTHERWISE ZERO.

SCAN THE UV-ABBR-LIST FOR A UV-ABBR MATCHING ABBREV. RETURN CORRESPONDING UV-NO AND INDEX.

ARGUMENTS:

ABBREV	DSPLY[XX]
UV-ABBR-LIST	RECRD
VIEW-NO	DSPLY[S9(4)]
UV-PTR	DSPLY[99]

INCLUDE FILES:

UVABBR

DOCGROUP PS41231 Module Documentation

NAME: CDACAL
PURPOSE: ADD ROWS TO THE CS-ACTION-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDACAL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL THE CS ACTION LIST FROM THE TEMP TRANSFORM LIST
INITIALIZE CS-DELETE-FLAG -- 16 MAY 1986
INITIALIZE CS-SOURCE -- 16 MAY 1986
DETERMINE IF ENTITY IS GENERIC AND SET NEW FLAG
CS-CATEGORY-FLAG IF AUC IS THE CATEGORY DISCRIMINATOR -10 APR
1989
MOVE ROWS, 1 AT A TIME, FROM THE TEMP TRANSFORM LIST
TO THE CS-ACTION-LIST. IF CSAL OVERFLOW, GENERATE
AN ERROR MESSAGE. CHECK EC-NO TO DETERMINE IF GENERIC
IF SO, RETRIEVE AUC OF CATEGORY DISCRIMINATOR.

ARGUMENTS:

TEMP-XFORM-LIST	RECRD
CS-ACTION-LIST	RECRD
ES-ACTION-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

TXLIST
CSAL
ESAL
ERRPRO

ROUTINES CALLED:

CDCAT
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDACAQ
PURPOSE: ADD ROW TO CS ACTION LIST AND CS QUALIFY LIST AND
TYPE 1 RIT
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDACAQ
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FOR THE FIRST TEMP-RC-NO ENTRY WHICH MATCHES THE INPUT
ARGUMENT, FILL IN A CS-ACTION ENTRY AND A CS QUALIFY ENTRY.
FOR EACH ADDITIONAL MATCH, FILL IN A CS QUALIFY ENTRY.
ELIMINATE CSQ DUPLICATES AND CALL CDPRE6 TO GENERATE A
TYPE 1 REFERENTIAL INTEGRITY TEST.
ADD BOOLEAN-LIST -- 21 MAY 1986
DELETE USER-ERROR-COUNT -- 21 MAY 1986
CHANGE NDML-COUNTER TO PIC9(6) -- 21 MAY 1986
DELETE LDA REFERENCES -- 21 MAY 1986
ADD CDMQAL AND CDPBL CALLS -- 21 MAY 1986
POPULATE 2 NEW CS-ACTION FIELDS
(CS-SOURCE AND CS-DELETE-FLAG) -- 21 MAY 1986
MODIFY CSQ DUPLICATE ELIMINATION LOGIC - 21 MAY 1986
ADD LUW-NAME AS PASS-THROUGH PARAMETER -- 23 MAY 1986
CHANGE CDPRE6 CALL TO CDPRE5 CALL -- 23 MAY 1986
MOVE U TO CSQ-SOURCE (CS-QUALIFY) -- 5 MAR 1987
CHECK FOR "V" IN CSQ-SOURCE BEFORE MOVING
COUNTER TO CSQ-VARIABLE -- 23 JUN 87
DELETED IOS-SECTION PARAMETER -- 2 MAY 1989
POPULATE THE FIRST CS ACTION ROW, AND AS MANY
CS QUALIFY ROWS AS THERE ARE TEMP-RC-NO'S

MATCHING THE INPUT PARAMETER RC-NO. AFTER ALL ACTION AND QUALIFY TABLE ENTRIES HAVE BEEN POPULATED, MOVE ALL AUC ENTRIES IN THE QUALIFY LIST WHICH AREN'T ALREADY ON THE ACTION LIST TO THE ACTION LIST. ALSO POPULATE THE BOOLEAN LIST. FINALLY, CALL CDPRE5 TO GENERATE THE TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

TEMP-XFORM-LIST	RECRD
IND-EC-NO	DSPLY[S9(4)]
RC-NO	DSPLY[S9(4)]
ES-ACTION-LIST	
ES-QUALIFY-LIST	
UV-ABBR-LIST	
CODE-GENERATOR-TABLE	
FCB-1	
FCB-2	
FCB-3	
FCB-4	
MY-HOST	
TARGET-HOST	
SOURCE-LANGUAGE	
FCB-E	
NDML-COUNTER	
CS-ACTION-LIST	
CS-QUALIFY-LIST	
MODEL-NO	
LUW-NAME	
ERROR-STATUS	
RFT	
JQG-ATTRIBUTE-PAIR-LIST	
BLOCK-STACK	
FIRST-INNER-SELECT	
FORTRAN-VARIABLE-TABLE	
SUB-LANG	
EMBEDDED-LANGUAGE	
CURSOR-TABLE	

WHENEVER-TABLE
RET-STATUS

INCLUDE FILES:

ERRCDM
ERRFS
BOOLST
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
BLSTACK
APL
RFTABLE
FORVAR
CSAL
CSQUAL
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDATXL
PURPOSE: ADD ROW TO TEMP-XFORM-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDATXL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL IN NEXT TEMP-XFORM LIST ENTRY WITH CORRESPONDING INPUT PARAMETERS. ADJUST ROW-USED INDICATOR TO POINT TO LAST USED ROW GUARDING AGAINST TABLE OVERFLOW.
CHANGE NDML-COUNTER TO 9(6) -- 19 MAY 1986
POPULATE NEXT ROW OF TEMP TRANSFORM LIST

ARGUMENTS:

EC-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
CS-TYPE	DSPLY[X]
CS-SIZE	DSPLY[999]
CS-ND	DSPLY[99]
ES-INDEX	DSPLY[99]
NDML-COUNTER	DSPLY[9(6)]
TEMP-XFORM-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
TXLIST
ERRPRO

ROUTINES CALLED:

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDCMD
PURPOSE: EXTRACT CONCEPTUAL METADATA GIVEN THE TAG NUMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDCMD
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE WILL USE A TAG NUMBER OF AN ATTRIBUTE USE CLASS AND ACCESS THE CDM FOR ITS CONCEPTUAL TYPE, SIZE AND NUMBER OF DECIMAL DIGITS.

ROUTINE WAS MODIFIED TO USE EMBEDDED SQL 5/14/86
ROUTINE WAS MODIFIED NOT TO USE ORACLE
VIEW FOR RELEASE 2.3
-
SELECT THE PROPER DOMAIN GIVEN THE TAG NUMBER. SELECT TYPE, SIZE AND
NUMBER OF DECIAML DIGITS GIVEN THE DOMAIN.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TAG	DSPLY[S9(4)]
FCB-E	DSPLY[S9(9)]
EC-NO	DSPLY[S9(4)]
CS-TYPE	DSPLY[X]
CS-SIZE	DSPLY[999]
CS-ND	DSPLY[99]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDEMD
PURPOSE: RETRIEVE EXTERNAL METADATA AND DATA ITEM NUMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDEMD
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SELECT TO RETURN EXTERNAL METADATA (TYPE, SIZE,
NUMBER OF DECIMALS), AND THE DATA ITEM NUMBER GIVEN THE
VIEW NUMBER AND THE DATA ITEM NAME.
MODIFIED FOR EMBEDDED SQL -- 5/9/86
MODIFIED TO ACCEPT SOURCE-LANGUAGE PARAMETER AND CHECK
FOR F, C OR I DATA TYPE IF SOURCE LANGUAGE IS FORTRAN -- 3/5/87
SELECT DATA ITEM NUMBER, DATA TYPE, SIZE AND
NUMBER OF DECIMAL DIGITS FOR A PARTICULAR
DATA ITEM NAME WITHIN THE GIVEN VIEW. IF NOT
FOUND, GENERATE AN ERROR MESSAGE.

ARGUMENTS:

VIEW-NO	DSPLY[S9(4)]
DI-NAME	DSPLY[X(30)]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
DI-NO	DSPLY[S9(4)]
ES-TYPE	DSPLY[X]
ES-SIZE	DSPLY[999]
ES-ND	DSPLY[99]

RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDEMDA
PURPOSE: EXPAND ES ACTION LIST TO HOLD ALL DI NAMES FOR A
USER VIEW
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDEMDA
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

EXTRACT DI NAMES FOR ALL DATA ITEMS IN A USER VIEW.
FOR EACH DI NAME EXTRACTED, MAKE AN ENTRY IN THE
ES ACTION LIST. FOR THE FIRST DI NAME EXTRACTED, EXPAND THE
LAST
USED ROW OF THE ES ACTION LIST. FOR EACH ADDITIONAL DI NAME,
FILL
IN A NEW ROW.
MODIFIED FOR EMBEDDED SQL 5/5/86
ADDED NEW PARAMETER NDMLSTK TO SOLVE ES-ACTION-LIST BUG
WHEN DOING SELECT ALL WITH CURLY BRACKET 07/31/90
EXTRACT ALL DATA ITEMS FOR THE GIVEN VIEW AND
INSERT THEM INTO THE ES-ACTION-LIST.

ARGUMENTS:

VIEW-NO	DSPLY[S9(4)]
ES-ACTION-LIST	RECRD
NDML-STACK	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
EOD
ESAL
NDMLSTK
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDGTN
PURPOSE: RETRIEVE TAG NAME.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDGTN
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

THIS ROUTINE RETRIEVES THE ENTITY CLASS NAME AND TAG NAME GIVEN A TAG NUMBER.

ARGUMENTS:

FCB-E	DSPLY[S9(9)]
TAG-NO	DSPLY[S9(4)]
EC-NO	DSPLY[S9(4)]
TAG-NAME	DSPLY[X(30)]
EC-NAME	DSPLY[X(30)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDGTVW
PURPOSE: EXTRACT VIEW TYPE 2 FROM CDM AND POPULATE CSQ AND
BOOLEAN
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDGTVW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE WILL SELECT TYPE 2'S QUALIFICATIONS FOR A SPECIFIED VIEW FROM VIEW_QUALIFIY_CRITERIA (CONDITION, TEXT_TYPE AND TEXT). IT POPULATES THE CS-QUALIFY AND BOOLEAN LISTS. THIS ROUTINE IS CALLED FROM CDPRE4 FOR SELECT, MODIFY, DELETE AND QUERY-COMBINATION NDML ACTIONS.

-

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
UV-ABBR-LIST	RECRD
CS-QUALIFY-LIST	RECRD
BOOLEAN-LIST	RECRD
NDML-ACTION	DSPLY[X]
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
UVABBR
CSQUAL
BOOLST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
SQLTFL
SQLOPN
CDCMD
SQLCLS
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDINEC
PURPOSE: RETRIEVE IND ENT FOR DEP ENT AND PERFORM TYPE1 REF
INTEG TEST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDINEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF LINK_RELATION TABLE TO FIND ANY IN-
DEPENDENT ENTITY CLASSES. FOR EACH FOUND, CALL CDACAQ TO SET
UP TYPE 1 REFERENTIAL INTEGRITY TEST.
CONVERTED TO EMBEDDED SQL -- 14 MAY 1986
NDML-COUNTER MADE PIC 9(6)-- 14 MAY 1986
USER-ERROR-COUNT DELETED -- 14 MAY 1986
ADD LUW-NAME AS PASS THROUGH PARAMETER -- 22 MAY 1986
CONVERT TO CHECK OF LINK_RELATION TABLE --- 10 APR 1989
PERFORM SQL SEARCH OF LINK_RELATION TABLE FOR ALL
INDEPENDENT ENTITIES OF TEMP-EC-NO (1). FOR EACH
INDEPENDENT ENTITY FOUND, CALL CDACAQ TO GENERATE
A TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD

CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
LUW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	
JQG-ATTRIBUTE-PAIR-LIST	
BLOCK-STACK	
FIRST-INNER-SELECT	
FORTRAN-VARIABLE-TABLE	
SUB-LANG	
EMBEDDED-LANGUAGE	
CURSOR-TABLE	
WHENEVER-TABLE	
RET-STATUS	

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
CSAL
CSQUAL
RFTABLE

APL
BLSTACK
FORVAR
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDACAQ
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDJUV
PURPOSE: VERIFY JOIN TO TARGET USER VIEW FOR DELETE AND MODIFY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDJUV
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

-

CDJUV ENSURES, THAT FOR A DELETE OR MODIFY WITH A USING
CLAUSE, THAT AT LEAST ONE OF THE "USING" VIEWS JOINS
BACK TO THE TARGET TABLE.
SEARCH BOTH RIGHT AND LEFT SIDES OF THE ESQ TRYING
TO MATCH ESQ-UV-ABBRR AND ABBRL WITH UV-ABBRR(1).
IF A MATCH IF FOUND, CHECK IF THE OPPOSITE SIDE
CONTAINS A VIEW REFERENCE NOT EQUAL TO THE TARGET
VIEW. IF NO JOINS TO THE TARGET VIEW ARE FOUND,
GENERATE AN ERROR MESSAGE.

ARGUMENTS:

UV-ABBR-LIST
ES-QUALIFY-LIST
FCB-E
ERROR-STATUS

INCLUDE FILES:

UVABBR
ESQUAL

ROUTINES CALLED:

RPTERR

DOCGROUP PS41231 Module Documentation

NAME: CDKYUQ
PURPOSE: SET UP KEY UNIQUENESS TEST FOR AN ENTITY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDKYUQ
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL IN NEXT ROW OF CS-ACTION-LIST FOR EVERY UNIQUE KC-NO
RETURNED. FILL IN NEXT ROW OF CS-QUALIFY-LIST FOR EVERY
ROW RETURNED. ELIMINATE ALL DUPLICATE CS-QUALIFY ENTRIES.
FOR EACH UNIQUE KC-NO, GENERATE KEY UNIQUENESS TEST.
CONVERT TO EMBEDDED SQL -- 15 MAY 1986
ADD CDMQAL CALL -- 15 MAY 1986
ADD CDPBL CALL -- 15 MAY 1986
ENHANCE CSQ DUPLICATE ELIMINATION LOGIC -- 15 MAY 1986
ADD LUW-NAME AS CDPRE5 PASS-THROUGH PARAMETER -- 22 MAY 1986
CHANGE ALL CDPRE6 CALLS TO CDPRE5 -- 23 MAY 1986
MOVE SPACES TO NEW FIELD IN CS-QUALIFY -- 3 MAR 1987
CHECK FOR "V" IN CSQ-SOURCE BEFORE INSERTING COUNTER
IN CSQ-VARIABLE FIELD
SET UP A KEY UNIQUENESS TEST FOR EACH UNIQUE KEY
KEY CLASS BY POPULATING BOTH THE CS ACTION AND
QUALIFY LISTS. POPULATE A COMPLETELY NEW BOOLEAN
LIST (CDPBL) AND MOVE ANY CS-QUALIFY ENTRIES
NOT IN THE CS-ACTION-LIST TO THE CS-ACTION-LIST
(CDMQAL) PRIOR TO THE CDPRE5 CALL.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
LUW-NAME	DSPLY[X(30)]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS

EOD
BOOLST
TXLIST
CSAL
CSQUAL
ESAL
ESQUAL
UVABBR
CGTABLE
APL
RFTABLE
BLSTACK
FORVAR
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDMPIK
PURPOSE: CHECK FOR MODIFICATION OF PARTIAL INHERITED KEY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDMPIK
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FOR EACH UNIQUE RC-NO IN THE TEMP XFORM LIST, SELECT THE TAG-NOS FROM INHERTIED_ATT_USE WHERE THE RC_NOS ARE EQUAL. FOR EACH TAG-NO SELECTED, SEARCH THE TEMP XFORM LIST FOR A MATCH. IF FOUND, OK; OTHERWISE GENERATE ERROR MESSAGE.
CONVERTED TO EMBEDDED SQL -- 20 MAY 1986
IMPROVED ERROR HANDLING -- 20 MAY 1986
FOR EACH INHERITED TAG TO BE MODIFIED, CDMPIK MUST INSURE THAT ALL OF THE OTHER INHERITED TAGS FROM THE SAME KEY CLASS ARE ALSO TO BE MODIFIED. IF NOT, THE ERROR MESSAGE MUST IDENTIFY THE MISSING INHERITED ATTRIBUTES.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDGTN
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDMQAL
PURPOSE: BUILD ES/CS ACTION LIST ENTRIES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDMQAL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE PLACES ES-QUALIFY AND/OR CS-QUALIFY ENTRIES WHICH ARE NOT REPRESENTED IN THE ES-ACTION-LIST AND CS-ACTION-LIST RESPECTIVELY ON THOSE LISTS IN SUPPORT OF CONCEPTUAL EVALUATION OF THOSE QUALIFY ENTRIES NOT INTERNALLY EVALUATABLE.

-

ARGUMENTS:

ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

CHKCDM
ERRCDM
ESQUAL

CSAL
CSQUAL
ESAL
ERRPRO

ROUTINES CALLED:

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDNNEC
PURPOSE: DETERMINE IF THE VIEW OR DATA ITEMS MAP TO MULTIPLE
ENTITY CLASSES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDNNEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

CHECK VIEW_EC_XREF TO SEE IF VIEW IS MAPPED TO MORE
THAN ONE ENTITY
ROUTINE CHANGED FROM COB TO PCO FOR CREATE VIEW
ENHANCEMENTS - REL 2.3
CHECK VIEW-EC-XREF FOR MORE THAN ONE EC-NO.
IF MORE THAN ONE EXISTS, GENERATE
AN ERROR MESSAGE APPROPRIATE TO THE ES-ACTION.

ARGUMENTS:

USER-VIEW-NO	DSPLY[S9(4)]
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

ERRFS
EOD
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
SQLCLS
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDPBL
PURPOSE: POPULATE BOOLEAN LIST.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPBL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE, FOR TYPE 1 REFERENTIAL INTEGRITY AND KEY UNIQUENESS TESTS, BUILDS A COMPLETE BOOLEAN LIST. FOR SELECTS, MODIFYS, DELETES AND TYPE 2 REFERENTIAL INTEGRITY TESTS, THIS ROUTINE POPULATES BL-ESQ-PTR'S AND BL-CS-PTR'S.

MODIFIED TO ADD TO BOOLEAN LIST FOR TYPE 2'S WHICH WERE RETRIEVED FROM VIEW_QUALIFY_CRITERIA
JUN 1989 - MODIFIED TO ADD CSAL CODES FOR CATEGORY DELETE
-

ARGUMENTS:

ES-QUALIFY-LIST	RECRD
CS-QUALIFY-LIST	RECRD
CS-ACTION-LIST	RECRD
BOOLEAN-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

CHKCDM
ERRCDM
ESQUAL
BOOLST
CSAL
CSQUAL
ERRPRO

ROUTINES CALLED:

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDPDI
PURPOSE: VERIFY THE EXISTENCE OF A MAPPED DATA ITEM
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPDI
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH FOR THE TAG NUMBER OF THE PROJECT DATA ITEM WHOSE VIEW NUMBER AND DATA ITEM NUMBER MATCH THE INPUT ARGUMENTS AND WHOSE ID MATCHES THE CORRESPONDING DATA ITEM ID. IF NOT FOUND, RETURN A TAG NUMBER OF ZERO.
THE CALLING PROGRAM GENERATES THE ERROR MESSAGE.
MODIFIED FOR EMBEDDED SQL -- 13 MAY 1986
PERFORM SQL SELECT OF THE TAG NUMBER FROM
PROJECT_DATA_ITEM GIVEN THE VIEW NUMBER AND
DATA ITEM NUMBER. RETURN A TAG NUMBER OF
ZERO IF NOT FOUND.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
VIEW-NO	DSPLY[S9(4)]
DI-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDPRE4
PURPOSE: EXTERNAL SCHEMA/CONCEPTUAL SCHEMA TRANSFORMATION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPRE4
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

THE FUNCTION OF THIS EXTERNAL-SCHEMA-TO-CONCEPTUAL-SCHEMA TRANSFORMER IS TO CONVERT AN NDML REQUEST EXPRESSED IN EXTERNAL SCHEMA TERMS INTO ONE OR MORE NDML REQUESTS EXPRESSED IN CONCEPTUAL SCHEMA TERMS. THE CONVERSION INVOLVES TRANSLATING EACH USER VIEW INTO THE CORRESPONDING ENTITY CLASSES AND EACH DATA ITEM INTO THE CORRESPONDING ATTRIBUTE USE CLASSES. IT ALSO INVOLVES IDENTIFYING THE RELATIONAL JOIN OPERATIONS THAT ARE NEEDED TO CONSTRUCT EACH USER VIEW TABLE FROM THE ENTITY CLASS TABLES AND IDENTIFYING THE INTEGRITY TESTS THAT WILL BE EMPLOYED WITH EACH NDML UPDATE REQUEST. THIS IMPLEMENTATION WILL NOT SUPPORT DERIVED DATA ITEMS.
CONVERT TO EMBEDDED SQL -- 10 JUNE 1986
DELETE SEC-DECOMPOSITION-LIST -- 10 JUNE 1986
DELETE CE-WORK-LIST -- 10 JUNE 1986
MAKE CS-ACTION-LIST AN OUTPUT PARAMETER -- 10 JUNE 1986
ADD USER-MOD-ID, LUW-NAME AND BOOLEAN-LIST AS
INPUT PARAMETERS -- 10 JUNE 1986
MAKE NDML-COUNTER PIC 9(6) AND INPUT/OUTPUT PARAMETER --
10 JUNE 1986
DELETE USER-ERROR-COUNT REFERENCES -- 10 JUNE 1986
ADD CHECK FOR MODIFYS AND DELETES WITH USING CLAUSES

TO ENSURE THAT THE TARGET VIEW IS JOINED TO --
ADD LOGIC TO MOVE CS QUALIFICATIONS TO THE CS ACTION
LIST IN SUPPORT OF COMPLEX MAPPING -- 10 JUNE 1986
ADD LOGIC TO CREATE OR ADD TO THE BOOLEAN LIST --
ADD LOGIC TO UPDATE THE CDM CROSS REFERENCE -- 10 JUNE 1986
ADD CHECK TO INSURE THAT USED ES-VALUES ARE NUMERIC
WHEN THE DATA TYPE IS NUMERIC -- 10 JUNE 1986
POPULATE CSQ-VARIABLE ONLY WHEN ESQ-UV-ABBRR IS BLANK
-- 10 JUNE 1986
CHECK THAT LEFT AND RIGHT SIDE QUALIFY TYPES ARE
COMPATABLE -- 10 JUNE 1986
CHANGE INITIALIZATION OF TEMP-XFORM-LIST, CS-QUALIFY-LIST,
CS-ACTION-LIST AND TEMP-JOIN-LIST -- 27 FEB 87
CHANGE CALL TO CDVIEW TO RETRIEVE DISTINCT_IND. IF USER
DID NOT SPECIFY 'DISTINCT' BUT ONE VIEW IS DISTINCTED,
THEN ES-DISTINCT-FLAG IS SET TO 'Y' - 25 FEB 87
ADD CALL TO CDGTVW TO PICK UP TYPE 2 QUALIFICATIONS
FROM VIEW_QUALIFY_CRITERIA AND ADD TO CS-QUALIFY AND
ADD TO THE BOOLEAN LIST FOR DELETE, MODIFY, SELECT
AND QUERY-COMBINATION ACTIONS -- 25 FEB 87
CHANGED LOGIC IN DECOMPOSE-USER-VIEW (STEP 9) (SELECT AND
QUERY-COMBINATION ACTIONS) TO RETRIEVE THE
TYPE 3 QUALIFICATIONS FROM VIEW_QUALIFY_CRITERIA
FOR A SPECIFIC VIEW AND BUILD THE TEMP-JOIN-LIST USING
THE TAG NUMBERS RETRIEVED - 25 FEB 87
CHANGE TO SET A NEW FIELD IN CS-QUALIFY (CSQ-SOURCE) TO
'V' IF INFORMATION IS FROM VIEW_QUALIFY_CRITERIA, ELSE
SET TO 'U' -- 25 FEB 87
CHANGE PARAMETERS TO CALL "CDNNEC" WHICH WAS CHANGED
FROM COB TO PCC -- 25 FEB 87
CHANGE PARAMETERS TO CALL "CDEMD" -- 25 FEB 87
15-jul-87 -- after all view "joins" have been retrieved, and
populated, delete any csq entries which have the left auc
equal the right auc. this could happen if views are made
up from the same entity(s) 10.5
2 MAY -1989 -- ADD PROCESSING TO SUPPORT IDEF1X AS FOLLOWS:
INSERT - ADD CALL TO CD2NEC TO LOOK UP INTO CATEGORY RELATION
MODIFY - ADD CALL TO CDAUC TO DETERMINE IF CATEGORY
DISCRIMINATOR IS BEING MODIFIED.
ADD CALL TO CDCRIT TO LOOK UP INTO CATEGORY RELATION

FOR TYPE 1.
DELETE - ADD CALL TO CDERC TO DETERMINE IF ENTITY IS GENERIC
IF ENTITY IS NOT GENERIC - FOLLOWING CALLS ARE BY PASSED:
ADD CALL TO CDASEL FOR SELECT FOR CASCADE IF ENTITY
IS GENERIC.
ADD CALL TO CDELIS TO BUILD LIST OF TYPE 2'S AND
LIST OF ENTITIES FOR CASCADE DELETE
ADD CALL TO CD2SEL TO BUILD TYPE 2'S
ADD CALL TO CDZDEL TO BUILD CASCADE DELETES
2 MAY 1989 - ADD A NEW ROW TO TEMP-XFORM-LIST TO HOLD
CATEGORY TYPE
ADD A NEW .INC TO HOLD TABLE OF ECS FROM WHICH TO
BUILD TYPE 2'S FOR CASCADE DELETE
ADD A NEW .INC TO HOLD TABLE OF ENTITIES TO BE
DELETED FOR CASCADE DELETE.
ADD A NEW CS-QUALIFY CLONE TO HOLD CS-QUALIFICATIONS
FOR CASCADE DELETE SO AS NOT TO DESTROY USER'S
QUALIFICATIONS.

ARGUMENTS:

ES-QUALIFY-LIST	RECRD
ES-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CS-ACTION-LIST	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
FCB-E	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
CODE-GENERATOR-TABLE	RECRD
USER-MOD-ID	DSPLY[X(10)]
LUW-NAME	DSPLY[X(30)]
NDML-COUNTER	DSPLY[9(6)]
BOOLEAN-LIST	RECRD

RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
NDML-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
CSQVAR
DELCAT
TYP2TB
EOD
TJLIST
TXLIST
NDMLSTK
BLSTACK
ESQUAL
ESAL
CSQUAL
UVABBR
CSAL
APL
RFTABLE
FORVAR
CGTABLE
BOOLST
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

RPTERR
CDGTVW
CDMQAL
CDPBL
CDPRE5
CDIDIU
ERRPRO
CDVIEW
CDABVW
CDEMDA
CDEMD
CDPDI
CDCMD
CDPTEC
CDINEC
CD2NEC
CDKYUQ
CDACAL
CDNNEC
CDATXL
CDRCTG
CDUTXL
CDVTGK
CDMPIK
CD1RIT
CDCRIT
CDJUV
CDAUC
CDTGVW
CD2RIT
CDERC
CDASEL
CDELIS
CD2SEL
CDZDEL

CDVNV
CDRCNR
SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLADR
SQLAD1
SQLFCH
SQLTFL
SQLOPN
SQLOSQ
SQLAB1
SQLEXE
SQLTOC

DOCGROUP PS41231 Module Documentation

NAME: CDPTEC
PURPOSE: DETERMINE WHETHER VIEW MAPS TO PART OF AN ENTITY CLASS
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPTEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

INSURE THAT TAG NUMBER EXTRACTED FROM ATTRIBUTE_USE_CL
MATCHES AT LEAST 1 TEMP-AUC, OTHERWISE, ERROR.
CONVERTED TO EMBEDDED SQL, ALL USER-ERROR-COUNT
REFERENCES DELETED -- 14 MAY 1986
FOR EACH TAG BELONGING TO AN ENTITY CLASS,
FIND IF IT IS EQUAL TO AT LEAST ONE TEMP-AUC.
IF NOT, GENERATE AN ERROR MESSAGE APPROPRIATE
TO THE ES-ACTION.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
RPTERR
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDRCNR
PURPOSE: OBTAIN RELATION CLASS NUMBER FOR OUTER JOIN
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDRCNR
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- SEARCH INHERITED_ATT_USE TABLE FOR THE
RC NO WHOSE TAG-NO MATCHES THE INPUT ARGUMENT.

CONVERTED TO EMBEDDED SQL -- 20 MAY 1986
REPLACED ALL "NOT IN SET" REFERENCES WITH
"OUTER JOIN" REFERENCES -- 20 MAY 1986
-
PERFORM SINGLE-ROW SELECT TO RETRIEVE THE RELATION
CLASS NUMBER GIVEN THE TAG NUMBER OF THE INHERITED
ATTRIBUTE IN SUPPORT OF THE OUTER JOIN.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
RC-NO	DSPLY[S9(4)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDRCTG
PURPOSE: GET THE RC AND OWNER TAG OF AN INHERITED ATTRIBUTE
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDRCTG
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF THE INHERITED-ATT-USE TABLE LOOKING
FOR RELATION CLASS NUMBER AND KEY CLASS MEMBER TAG NUMBER
WHERE THE TAG NUMBER MATCHES THE INPUT PARAMETER.
CONVERTED TO EMBEDDED SQL -- 19 MAY 1986
ADD RETRIEVAL OF RELATION TYPE -- 2 MAY 1989
PERFORM 1-ROW SELECT OF RC NUMBER AND KCM TAG NUMBER
GIVEN THE TAG NUMBER. PERFORM STANDARD ERROR HANDLING.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
RC-NO	DSPLY[S9(4)]
KCM-TAG-NO	DSPLY[S9(4)]
RELATION-TYPE	DSPLY[X(30)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDTGVW
PURPOSE: RETRIEVE ALL TAGS TO WHICH A VIEW MAPS
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDTGVW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

SELECT ALL TAGS FOR A VIEW, RETRIEVE CONCEPTUAL METADATA AND FILL IN
A ROW OF THE TEMP-XFORM-LIST FOR EACH TAG SELECTED.
CONVERT TO EMBEDDED SQL -- 2 JUNE 1986
MODIFY NDML-COUNTER TO PIC 9(6) -- 2 JUNE 1986
DELETE USER-ERROR-COUNT AS OUTPUT PARAMETER -- 2 JUNE 1986
SEARCH PROJECT_DATA_ITEM FOR ALL TAGS IN THE GIVEN VIEW. FOR EACH TAG, EXTRACT CONCEPTUAL METADATA AND FILL IN A NEW ROW OF THE TEMP-XFORM-LIST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
VIEW-NO	DSPLY[S9(4)]
ES-INDEX	DSPLY[99]
NDML-COUNTER	DSPLY[9(6)]
ERROR-FILE	DSPLY[X(30)]
TEMP-XFORM-LIST	RECRD
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
EOD
TXLIST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDCMD
CDATXL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDUTXL
PURPOSE: UPDATE A ROW OF THE TEMP-XFORM-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDUTXL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

UPDATE THE TEMP-RC-NO AND THE TEMP-KCM-TAG-NO AND TEMP-RELATION ENTRIES OF
THE CURRENT ROW OF THE TEMP-XFORM-LIST WITH THE INPUT PARAMETERS.
MODIFY FOR TEMP TRANSFORM LIST EXPANSION -- 19 MAY 1986
MODIFY FOR TEMP TRANSFORM LIST CHANGE TO INCLUDE RELATION TYPE= 2 MAY 1989
UPDATE THE CURRENT TEMP-RC-NO AND TEMP-KCM-TAG-NO.

ARGUMENTS:

RC-NO	DSPLY[S9(4)]
KCM-TAG-NO	DSPLY[S9(4)]
RELATION-TYPE	DSPLY[X(10)]
TEMP-XFORM-LIST	RECRD

INCLUDE FILES:

TXLIST

DOCGROUP PS41231 Module Documentation

NAME: CDVIEW
PURPOSE: VERIFY THE EXISTENCE OF A VIEW IN THE CDM
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVIEW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF TABLE SEC TO VERIFY A VIEW GIVEN THE VIEW NAME. THE VIEW NUMBER IS RETURNED. IF THE VIEW DOESN'T EXIST, 0 IS RETURNED AS THE VIEW NUMBER.

MODIFIED TO EMBEDDED SQL - 5/5/86
SEARCH FOR USER VIEW NUMBER GIVEN USER VIEW NAME.
IF NOT FOUND, GENERATE ERROR MESSAGE.

ARGUMENTS:

VIEW-NAME	DSPLY[X(30)]
FCB-E	DSPLY[S9(9)]
VIEW-NO	DSPLY[S9(4)]
DISTINCT-IND	DSPLY[X]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD

ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDVNV
PURPOSE: CDVNV - VERIFY A NUMERIC VALUE
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVNV
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FUNCTION CDVNV VALIDATES A CHARACTER STRING TO DETERMINE WHETHER IT IS NUMERIC. THE FOLLOWING RULES ARE APPLIED:
1. A SIGN, IF PRESENT, MUST BE EITHER "+" OR "-" AND MUST IMMEDIATELY PRECEED A DECIMAL DIGIT OR DECIMAL POINT.
2. THE NUMBER, INCLUDING SIGN, DOES NOT HAVE TO BE LEFT JUSTIFIED IN THE FIELD, AS LONG AS THERE ARE NO EMBEDDED BLANKS.
3. THERE MAY BE, AT MOST, ONE DECIMAL POINT.
4. A DECIMAL NUMBER MUST EITHER PRECEED OR FOLLOW THE DECIMAL POINT. A DECIMAL NUMBER MAY BOTH PRECEED AND FOLLOW THE DECIMAL POINT.
5. AT LEAST ONE DECIMAL DIGIT MUST APPEAR IN THE NUMBER.

IF VIOLATIONS OF THE ABOVE RULES OCCURS, AN ERROR MESSAGE IS GENERATED.
APPLY RULES 1 THROUGH 5. GENERATE FATAL ERROR MESSAGE IF NECESSARY.

ARGUMENTS:

VALUE-IN	RECRD
DATA-ITEM	DSPLY[X(30)]
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]

ROUTINES CALLED:

RPTERR

DOCGROUP PS41231 Module Documentation

NAME: CDVTGK
PURPOSE: VERIFY THAT A TEMP-AUC IS NOT A KEY CLASS MEMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVTGK
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF KEY_CLASS_MEMBER ON ALL TEMP-AUCS TO VERIFY
THAT THE TAG IS NOT A KEY CLASS MEMBER
CONVERTED TO EMBEDDED SQL -- 19 MAY 1986
PERFORM SINGLE-ROW SELECT OF ALL TEMP TAGS TO
VERIFY THAT THEY ARE NOT MEMBERS OF THE
KEY CLASS MEMBER TABLE. IF FOUND, GENERATE AN
ERROR MESSAGE.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

ERRFS
EOD
TXLIST
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

3.10.5 Include File Descriptions

The following list contains a purpose and description of each include file in the documentation group as specified in the source code. The language it is written in is also given.

DOCGROUP PS41231 Include File Description

FILE NAME: APL
PURPOSE: JOIN QUERY ATTRIBUTE PAIR LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS INFORMATION ABOUT THE JOIN
ATTRIBUTES FOR NDML SUBTRANSACTIONS

DOCGROUP PS41231 Include File Description

FILE NAME: BLSTACK
PURPOSE: EXTERNAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS EXTERNAL SCHEMA INFORMATION FOR THE NDML QUALIFICATION

THE EXTERNAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: BOOLST
PURPOSE: BOOLEAN LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS THE BOOLEAN OPERATORS, PARENTHESES, AND POINTERS TO THE TYPE 2 CONDITIONS FOR AN NDML TRANSACTION

DOCGROUP PS41231 Include File Description

FILE NAME: CGTABLE
PURPOSE: CODE GENERATING TABLE- TRACKS ALL GENERATED SOFTWARE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

HOLDS PERTINENT RESULTS
ABOUT ALL CODE GENERATED OR MODIFIED BY THE
PRECOMPILER

DOCGROUP PS41231 Include File Description

FILE NAME: CHKCDM
PURPOSE: IISS CDMP CHECK STATUS CODES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

```
     CONTAINS ALL STATUS CODES FOR THE        *
     CDMP MODULES                             *
```

DOCGROUP PS41231 Include File Description

FILE NAME: CSAL
PURPOSE: CONCEPTUAL SCHEMA ACTION LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

TABLE TO HOLD CONCEPTUAL DATA ABOUT THE REQUEST

NOTE!!!!!! This table is cloned in both cdpre5 and cdpre4

DOCGROUP PS41231 Include File Description

FILE NAME: CSQUAL
PURPOSE: CONCEPTUAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS CONCEPTUAL SCHEMA INFORMATION FOR
THE REQUEST'S QUALIFICATION

NOTE!!!!!
This table is cloned as CSQUALX in CDPRE4. If it is changed, CSQUALX must be changed also.

THE CONCEPTUAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: CSQVAR
PURPOSE: SQL END OF DATA DEFINITION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: CURTAB
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: EOD
PURPOSE: SQL END OF DATA DEFINITION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: ERRCDM
PURPOSE: IISS ERROR STATUS CODES FOR CDMP MODULES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL ERROR CODES USED BY CDMP *
MODULES FOR ERROR HANDLING *

DOCGROUP PS41231 Include File Description

FILE NAME: ERRFS
PURPOSE: ERRFS.INC - FILE I/O PRIMITIVES (FILE SERVICES)
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

IISS ERROR CODES

THIS FILE DEFINES THE FS STATUS
CODES IN COBOL FORMAT

DOCGROUP PS41231 Include File Description

FILE NAME: ERRPRO
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: ESAL
PURPOSE: EXTERNAL SCHEMA ACTION LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS THE EXTERNAL SCHEMA INFORMATION FOR AN NDML REQUEST

THE EXTERNAL SCHEMA ACTION LIST

DOCGROUP PS41231 Include File Description

FILE NAME: ESQUAL
PURPOSE: EXTERNAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS EXTERNAL SCHEMA INFORMATION FOR THE NDML QUALIFICATION

THE EXTERNAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: FORVAR
PURPOSE: FORTRAN VARIABLE TABLE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS TABLE HOLDS THE ORIGINAL FORTRAN VARIABLE
AND ITS GENERATED SIX-CHARACTER COUNTERPART.

DOCGROUP PS41231 Include File Description

FILE NAME: NDMLSTK
PURPOSE: NDML COMMAND NESTING INFORMATION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: RFTABLE
PURPOSE: THE RESULT FIELD TABLE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: TJLIST
PURPOSE: TEMP JOIN LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS WILL TEMPORARILY STORE META-DATA ABOUT
JOINED ENTITY CLASSES MAKING UP A USER VIEW

DOCGROUP PS41231 Include File Description

FILE NAME: TXLIST
PURPOSE: TEMP TRANSFORM LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS WILL TEMPORARILY STORE METADATA ABOUT AN NDML UPDATE REQUEST EXPRESSED IN CS TERMS (INTERNAL TO PRE4)

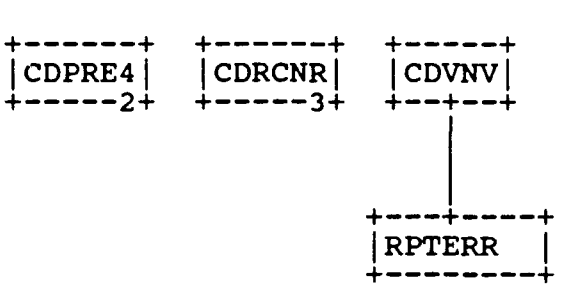
DOCGROUP PS41231 Include File Description

FILE NAME: UVABBR
PURPOSE: USER VIEW ABBREVIATION LIST
LANGUAGE: VAX-11 COBOL

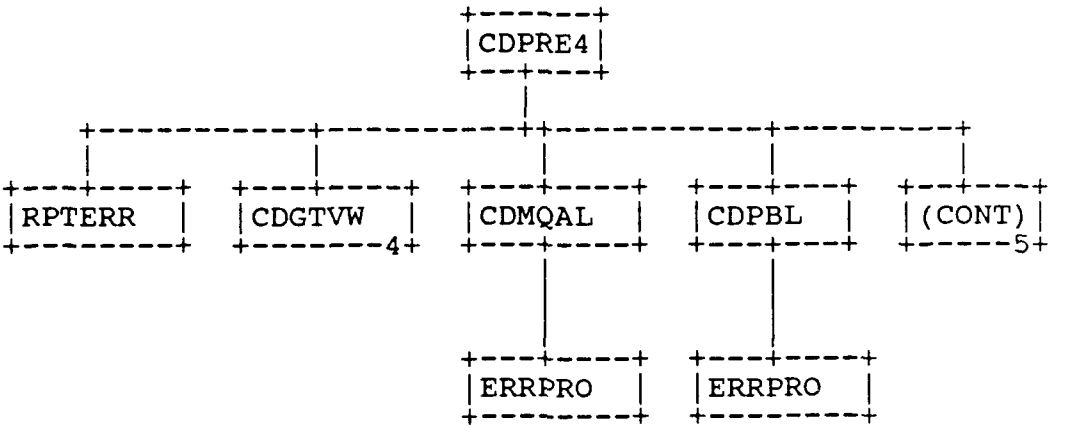
DESCRIPTION:

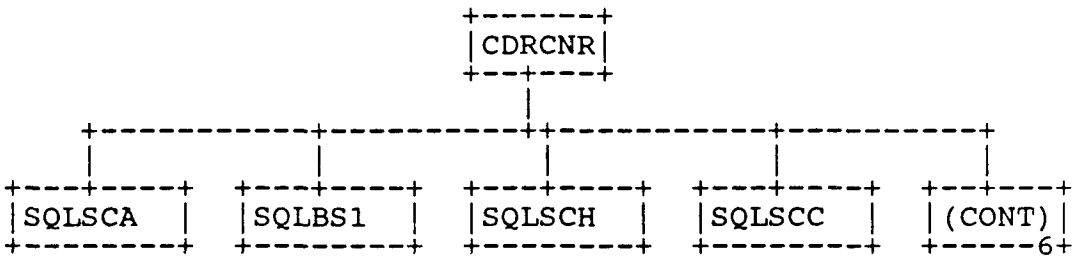
CONTAINS THE ABBREVIATIONS FOR ALL USER VIEW REFERENCED IN THE NDML REQUEST

3.10.6 Hierarchy Chart

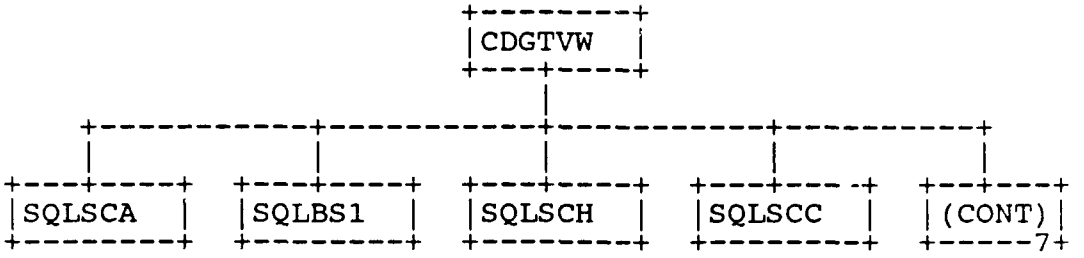


2

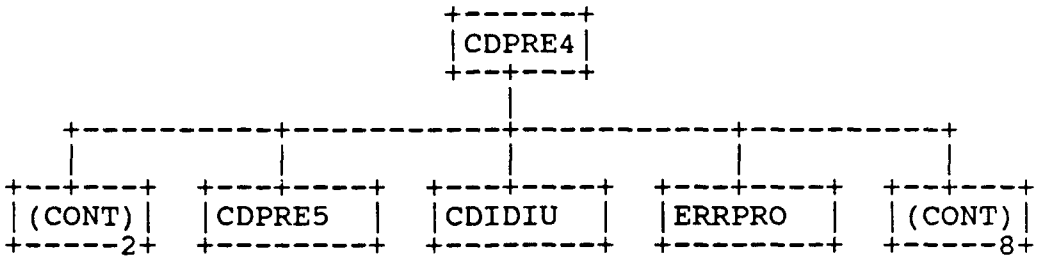



CDRCNR
SQLSCA
SQLBS1
SQLSCH
SQLSCC
(CONT)
6

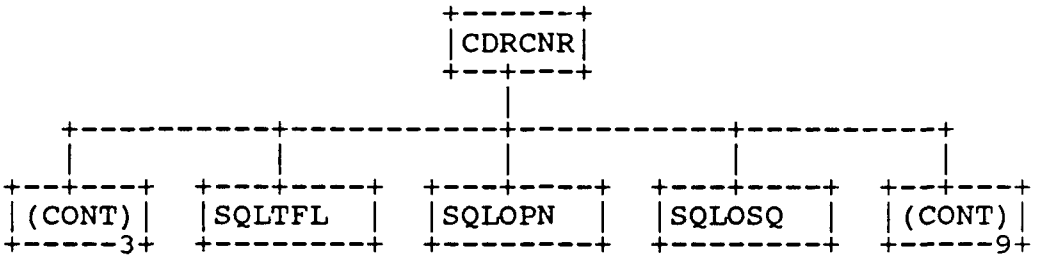
4



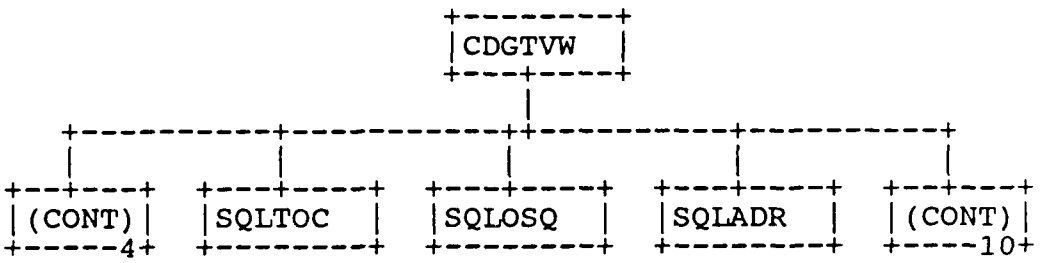
5

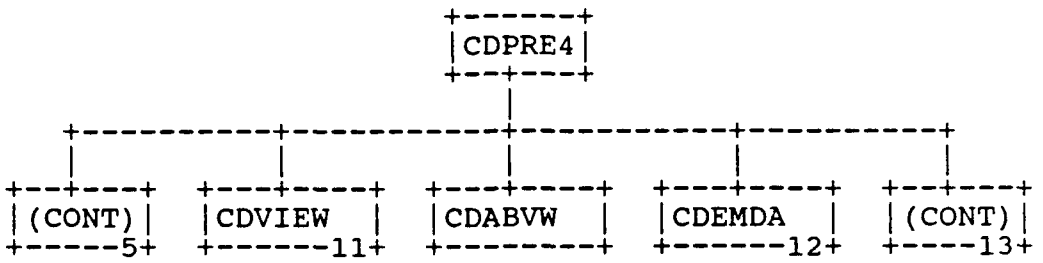


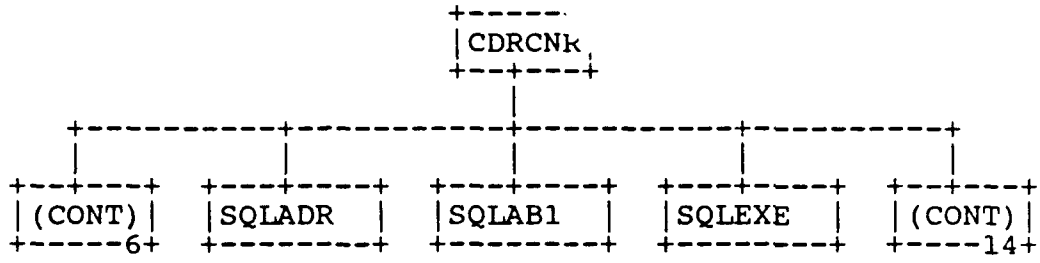
6



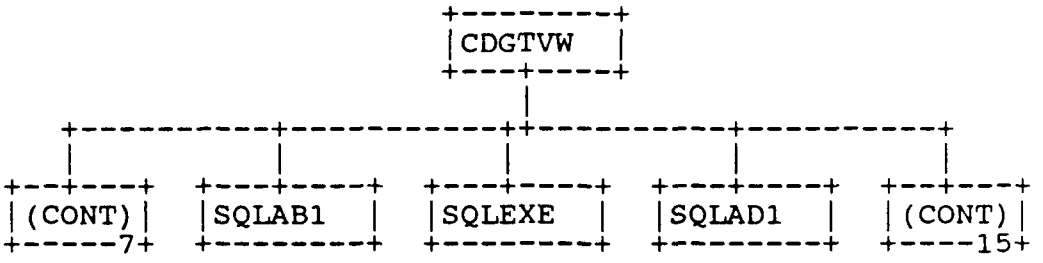
7

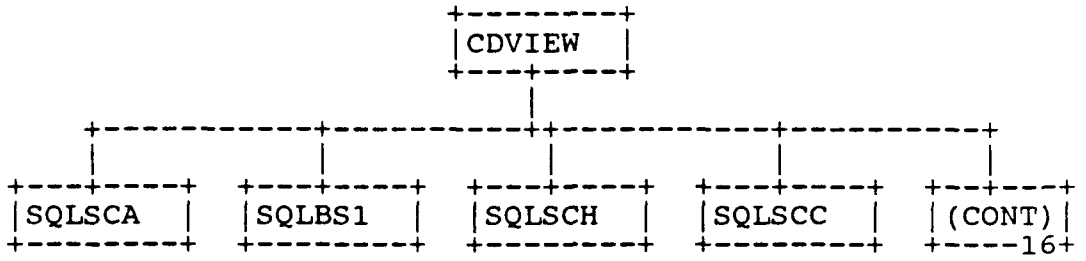



CDPRE4
(CONT)
5
CDVIEW
11
CDABVW
CDEMDA
12
(CONT)
13

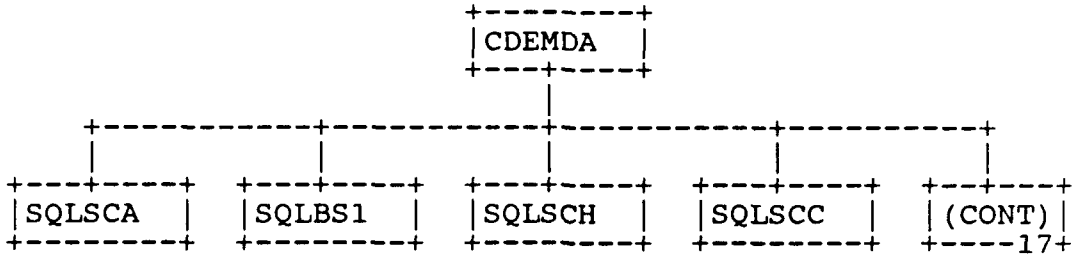

CDRCNk
(CONT)
6
SQLADR
SQLAB1
SQLEXE
(CONT)
14

10

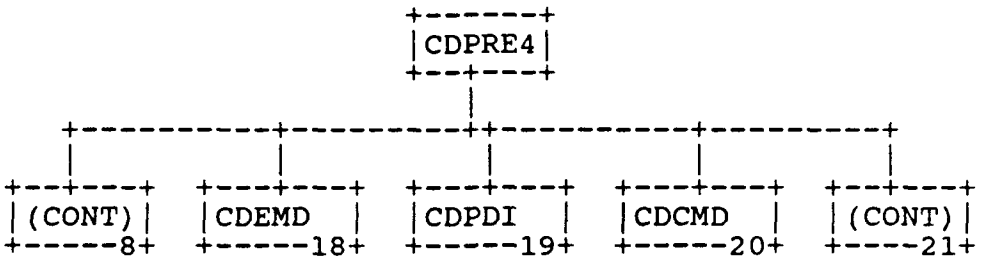


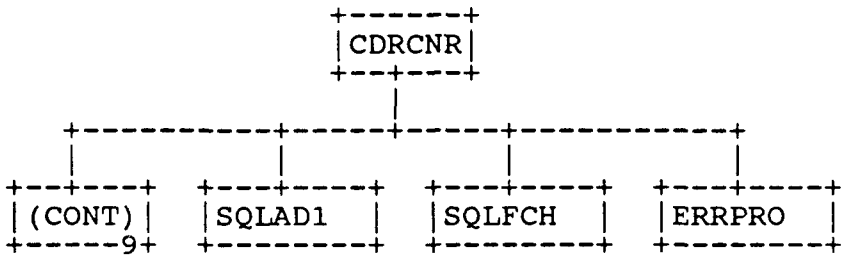

CDVIEW
SQLSCA
SQLBS1
SQLSCH
SQLSCC
(CONT)
16

12

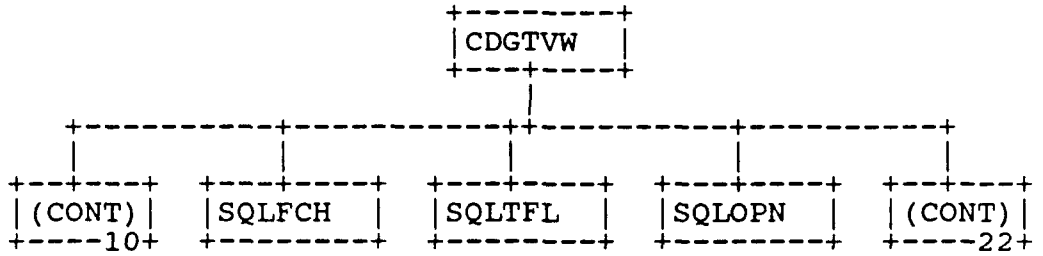


13

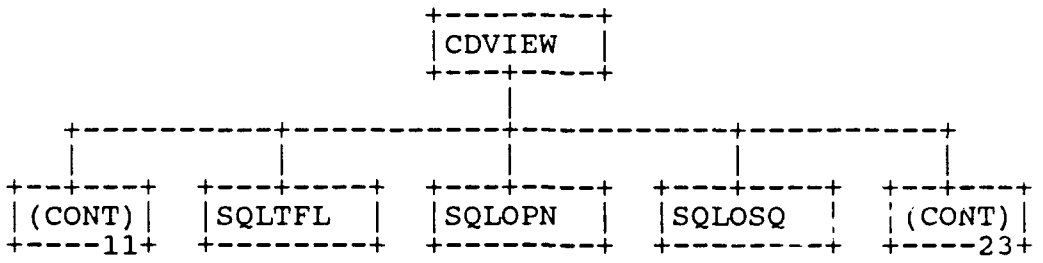


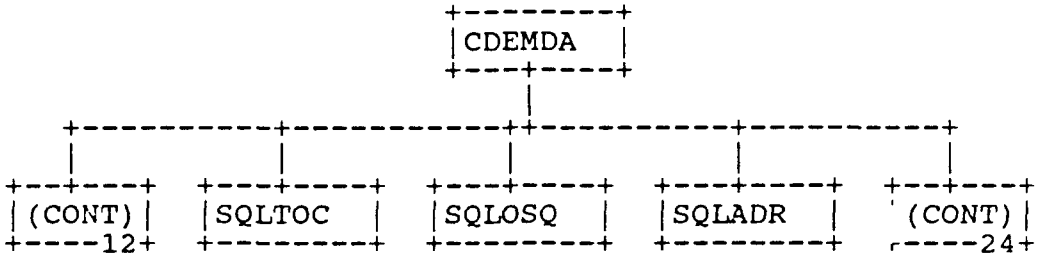

CDRCNR
(CONT)
SQLAD1
SQLFCH
ERRPRO

15



16

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SQLADR
(CONT)
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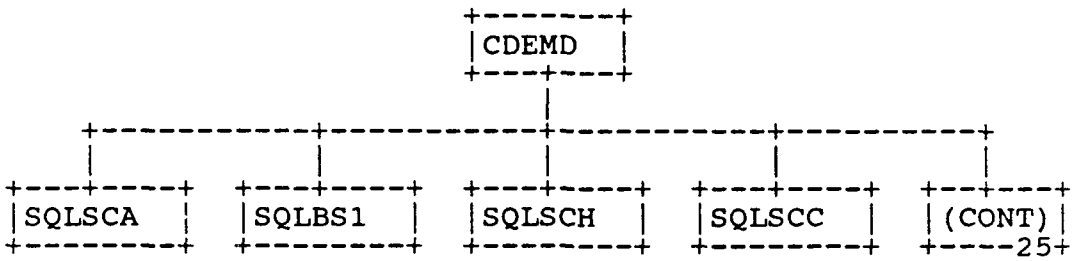

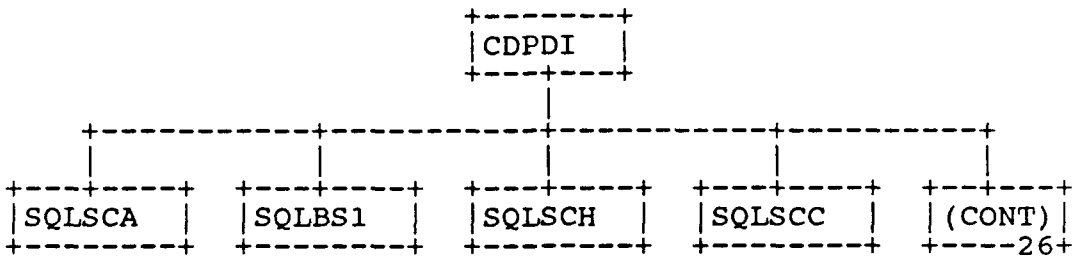
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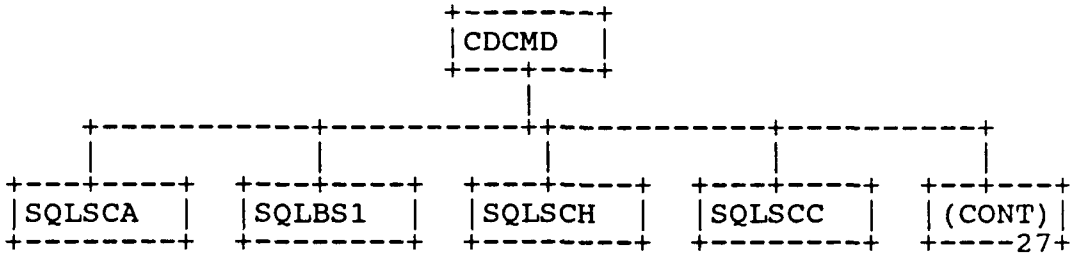

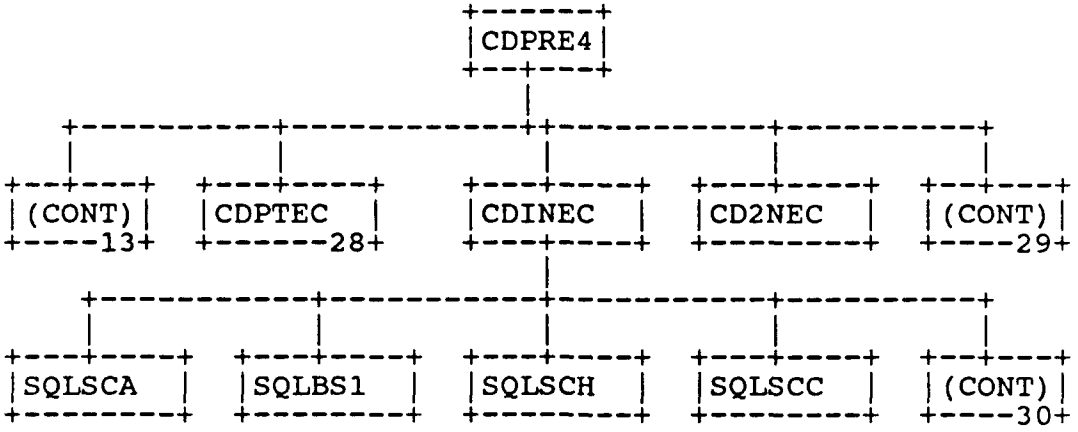
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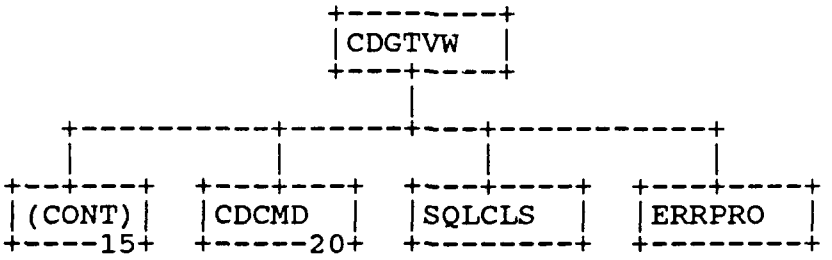
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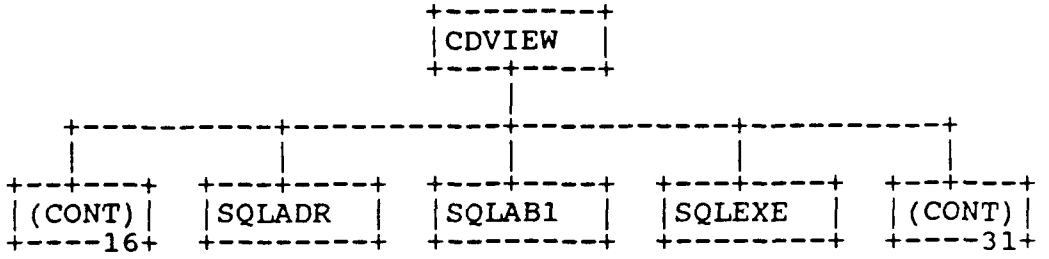

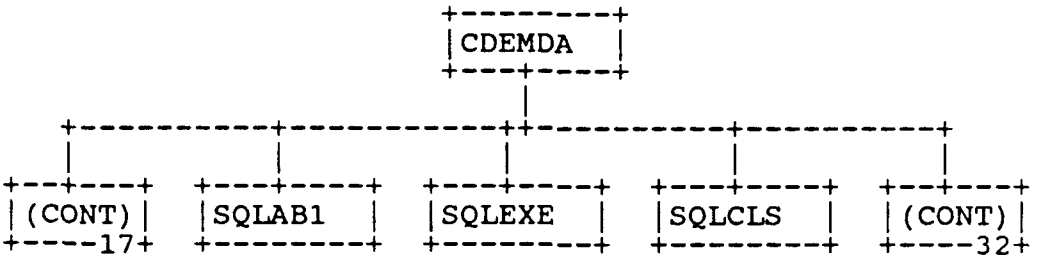
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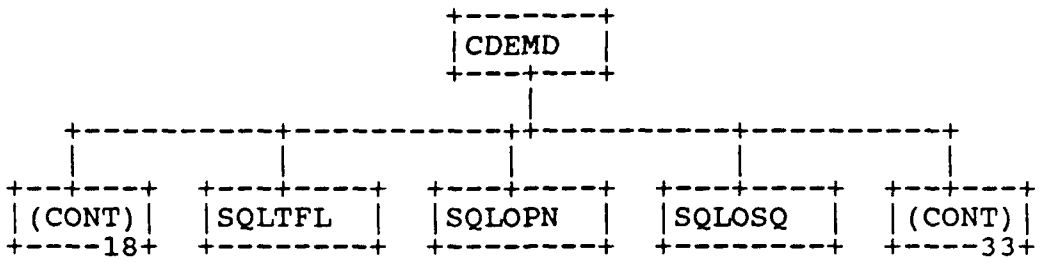

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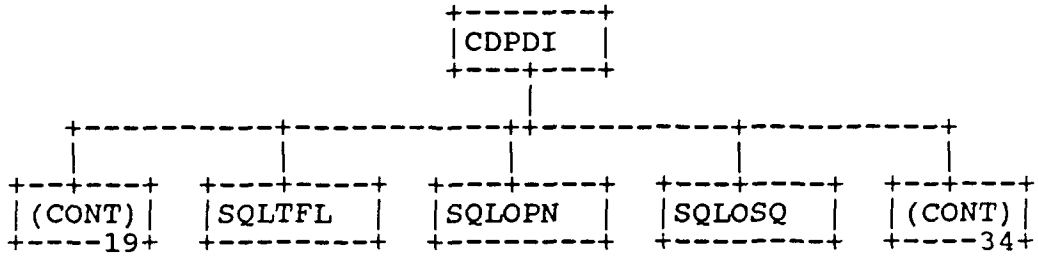

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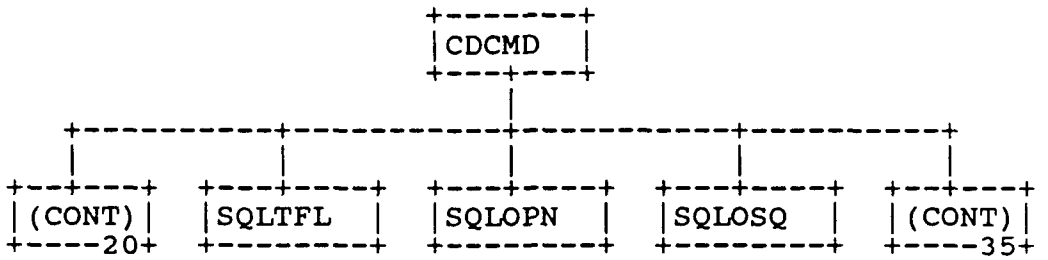

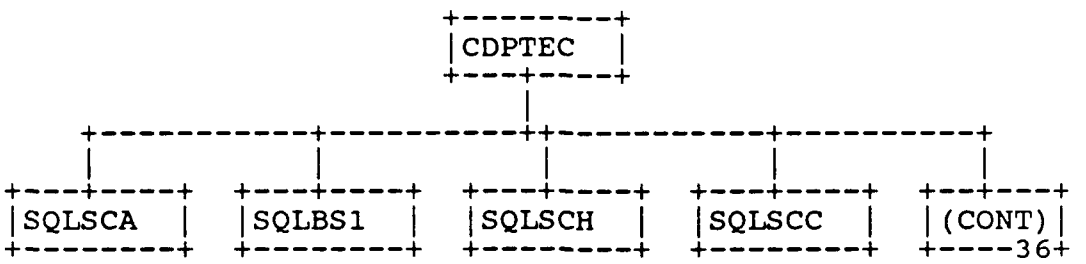
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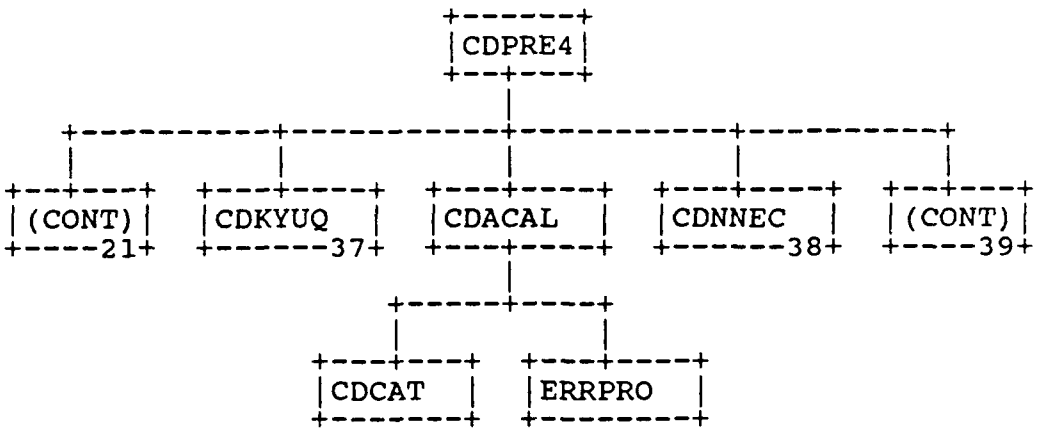
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CDCAT
ERRPRO

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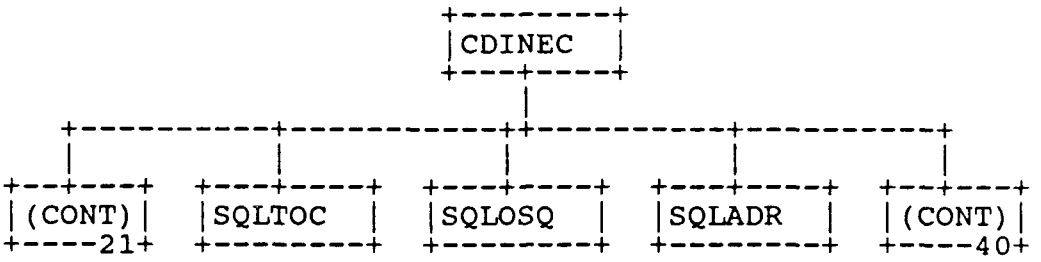

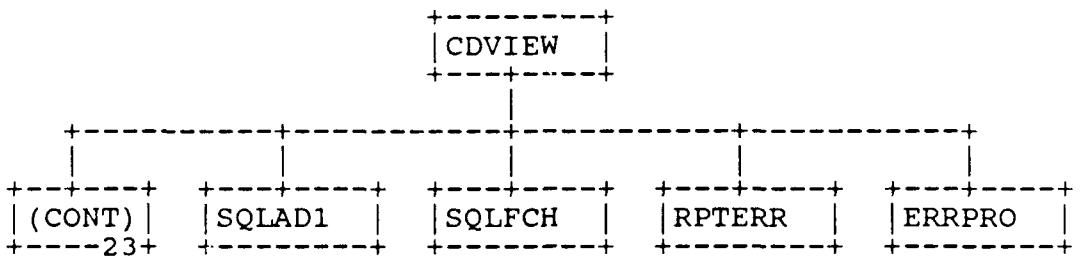
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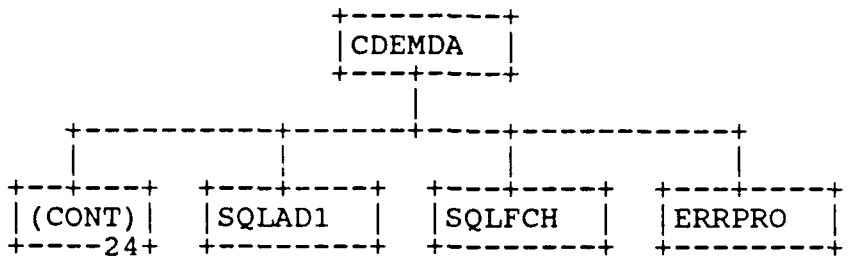
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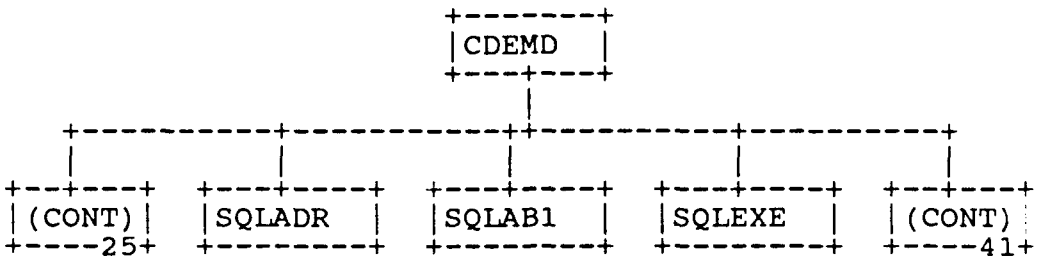
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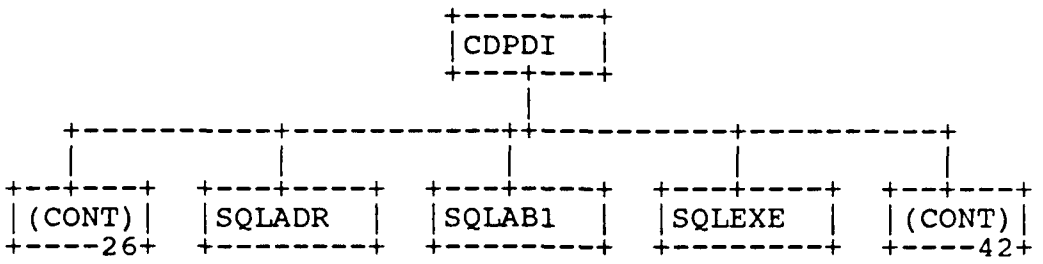

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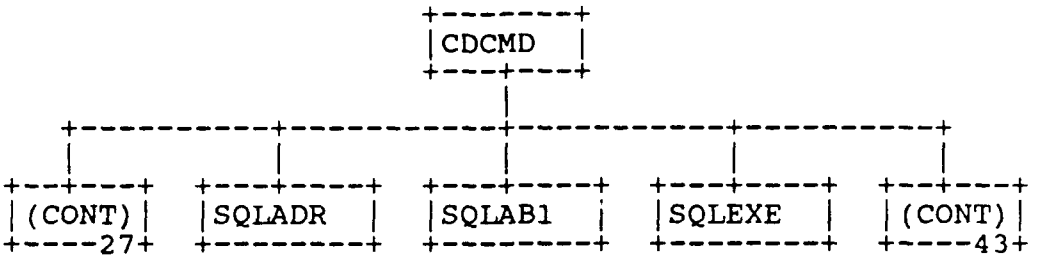

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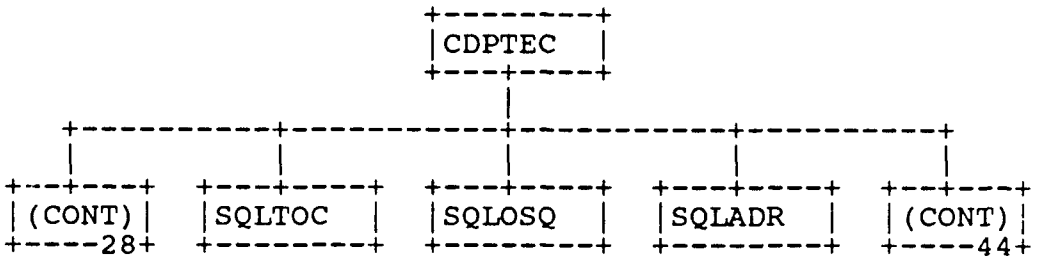

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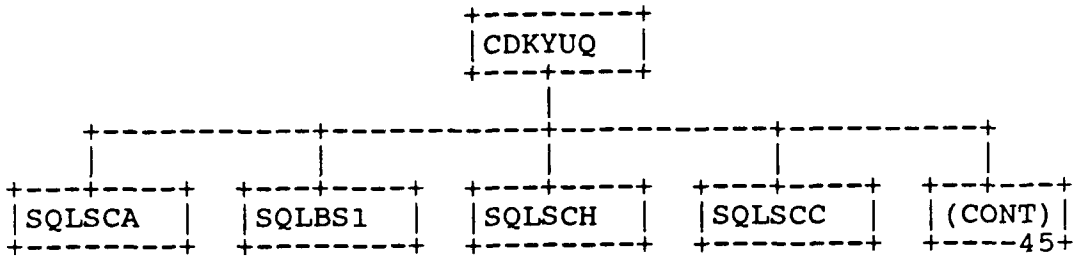

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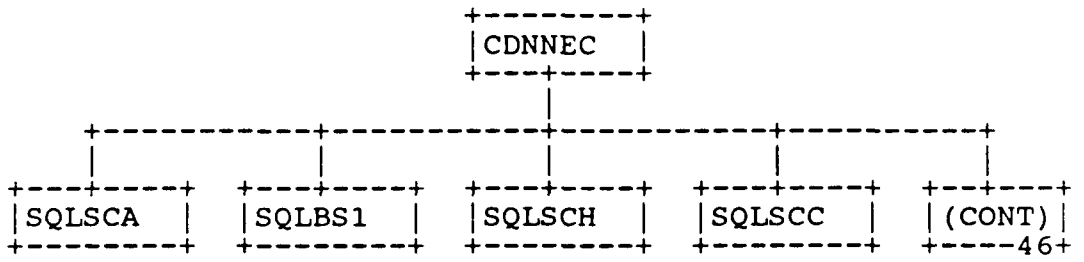

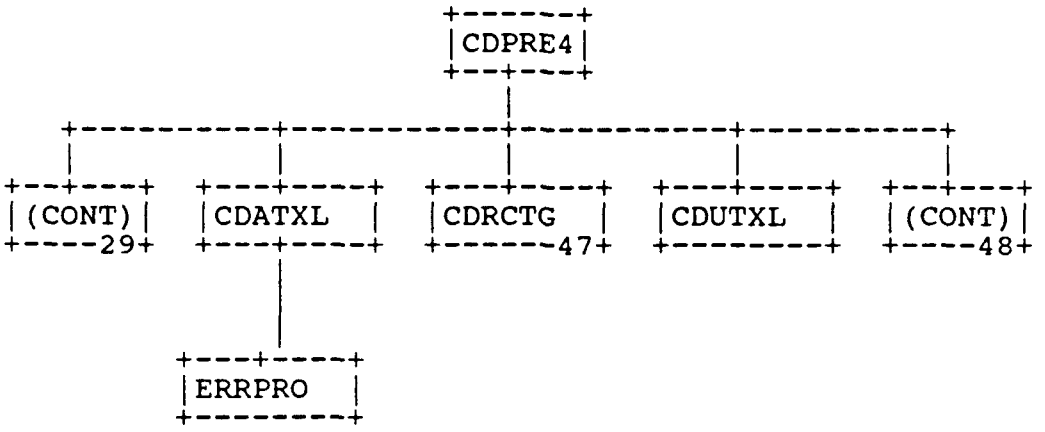
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ERRPRO

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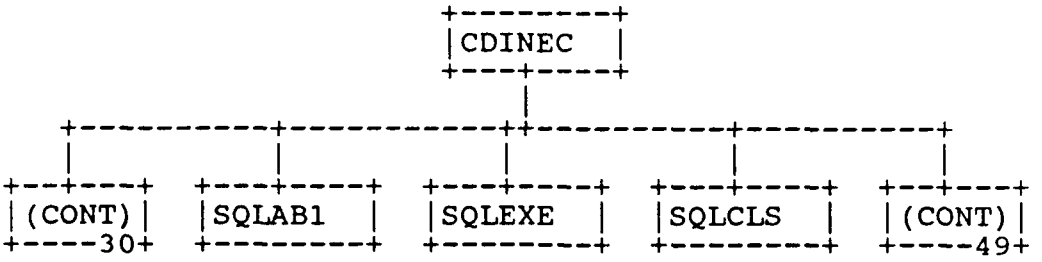

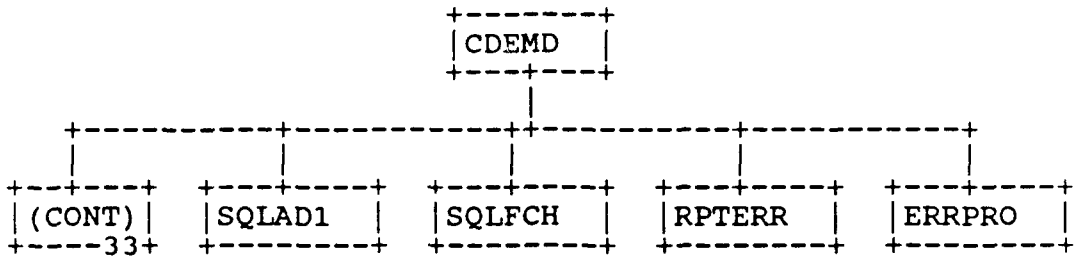
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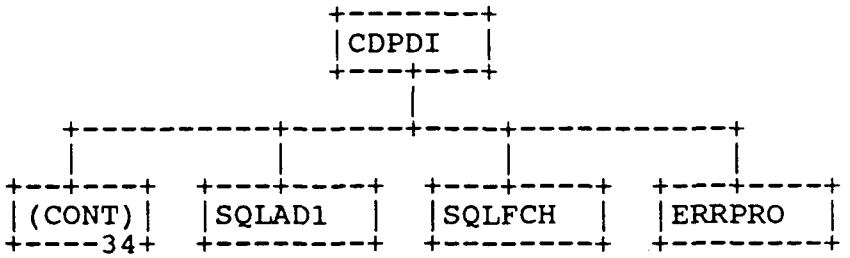

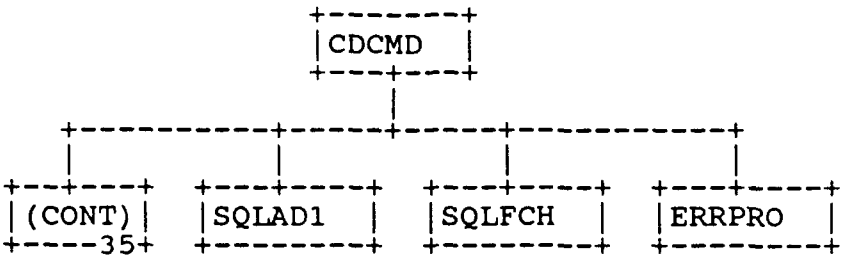
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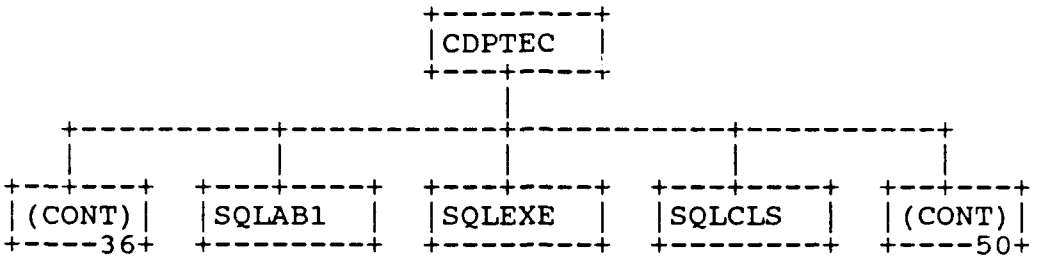

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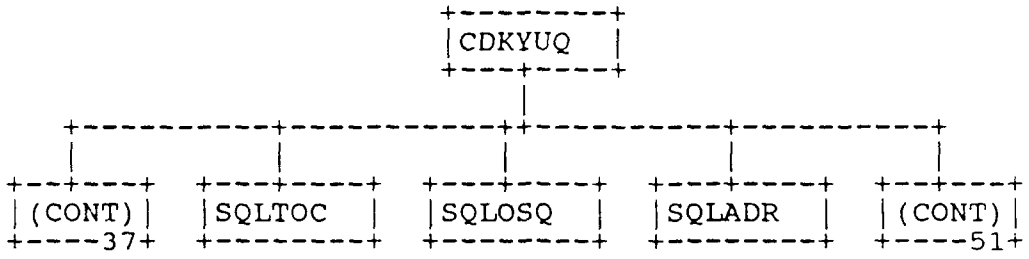

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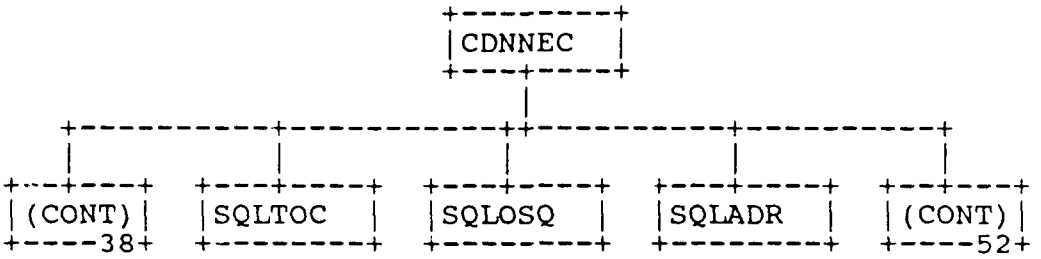

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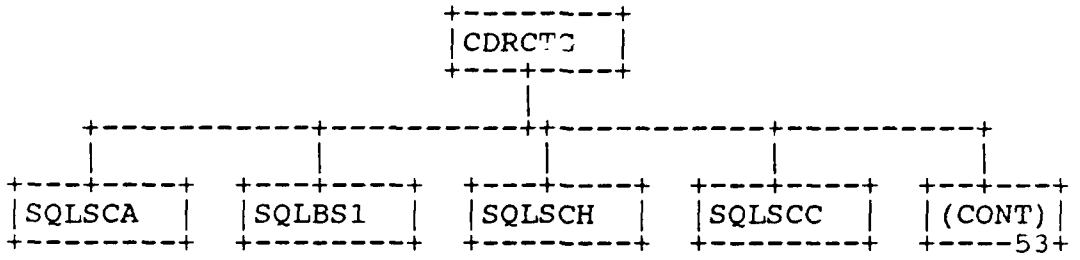

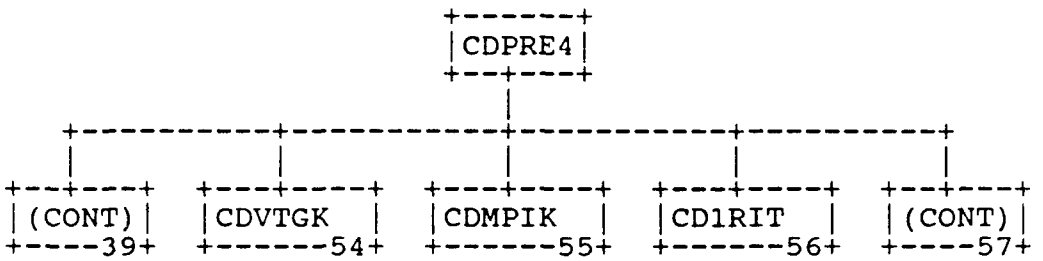
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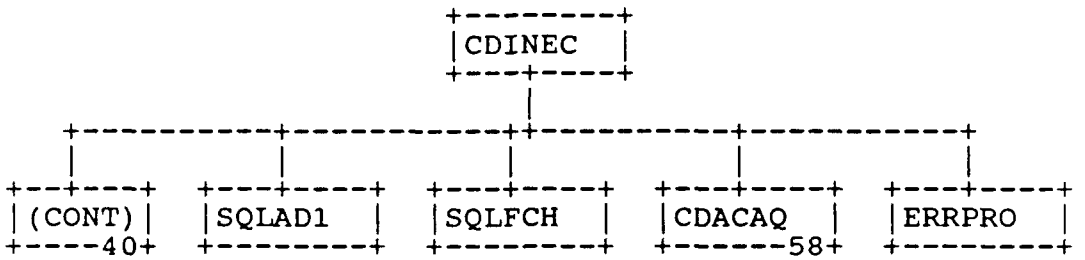
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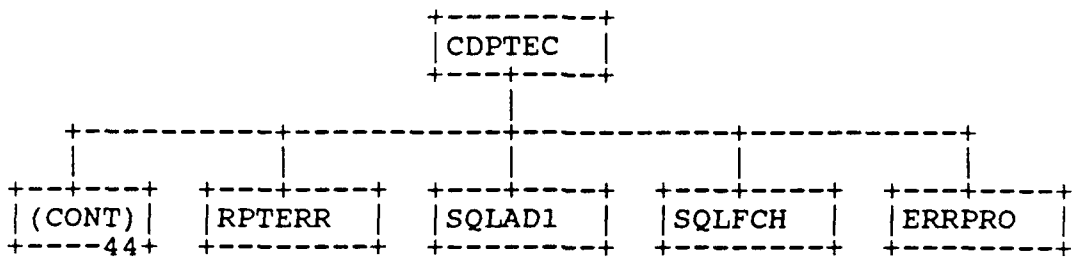

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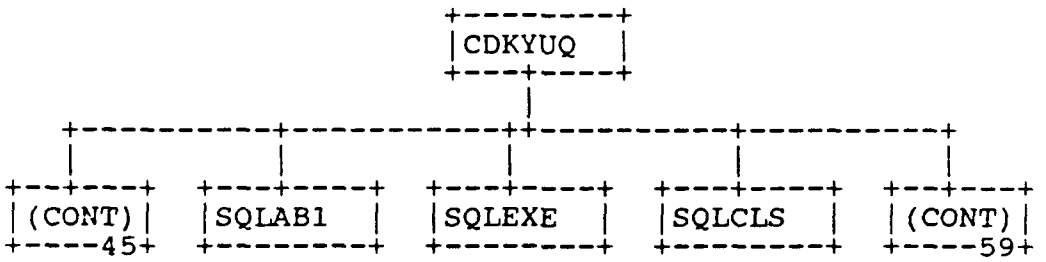

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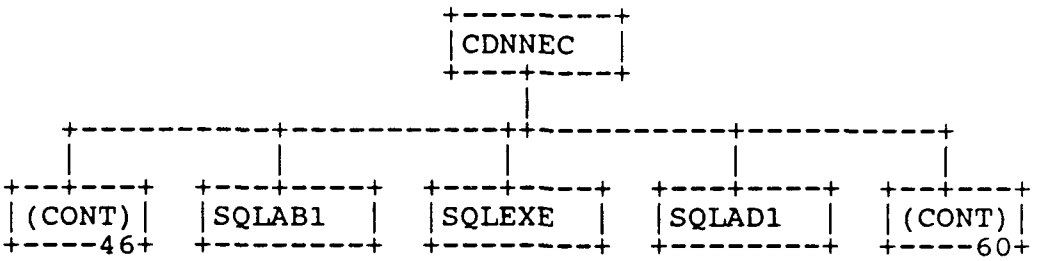

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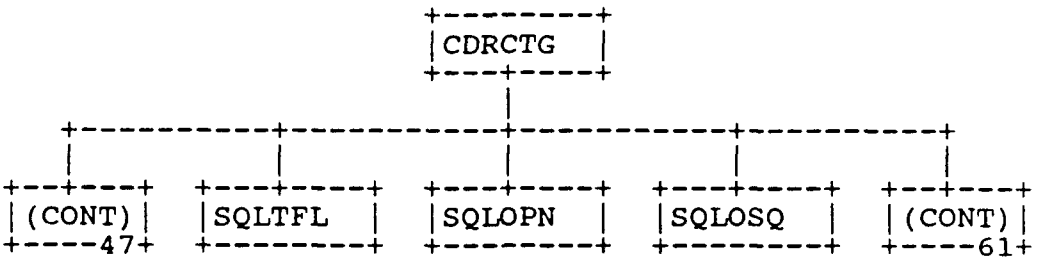

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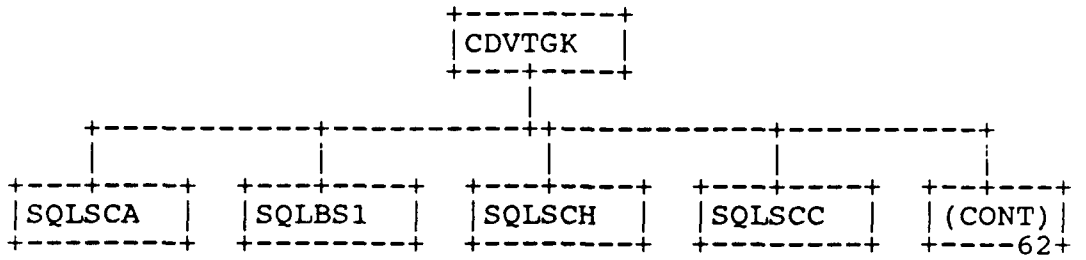

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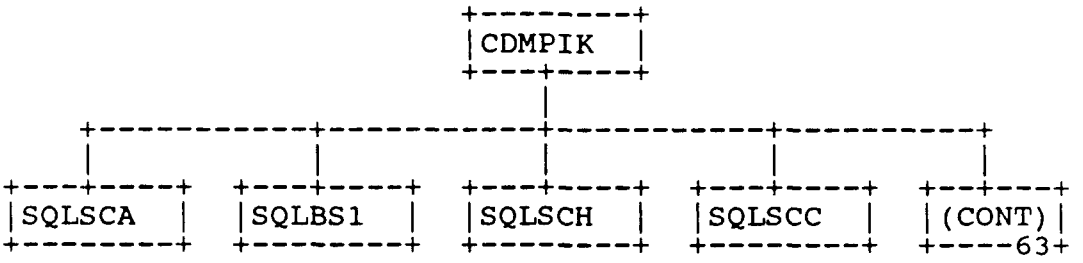

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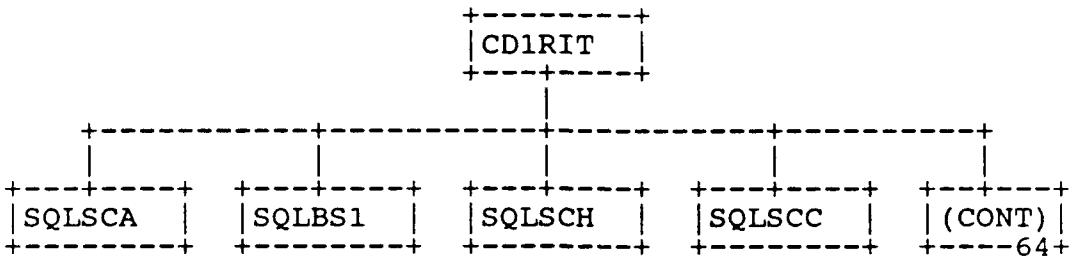

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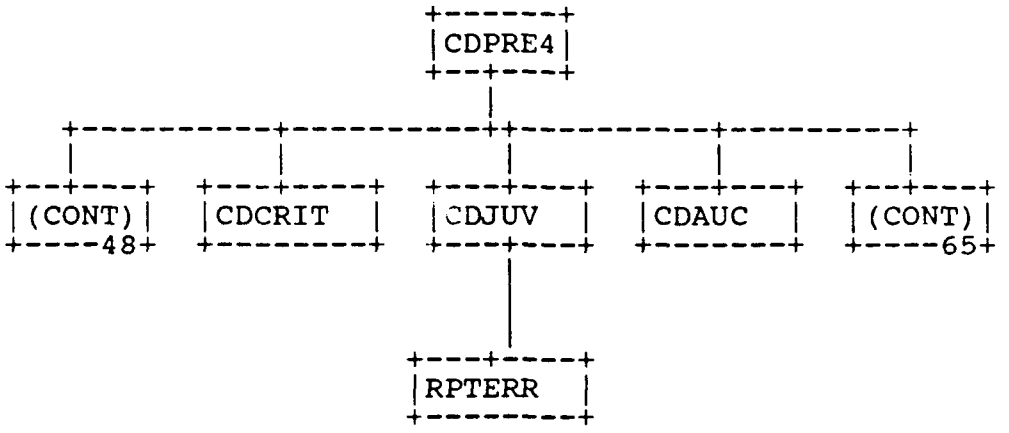

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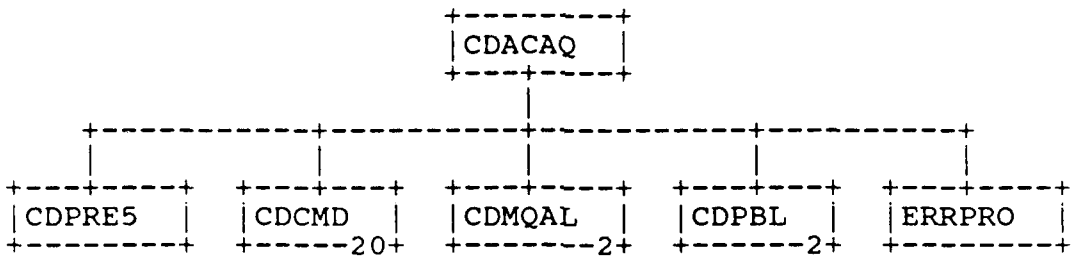

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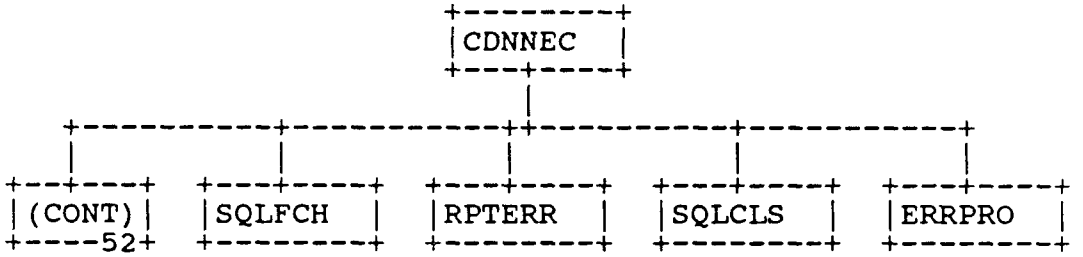

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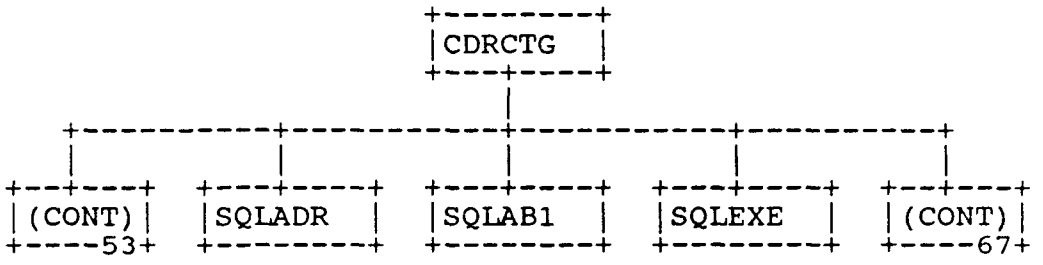

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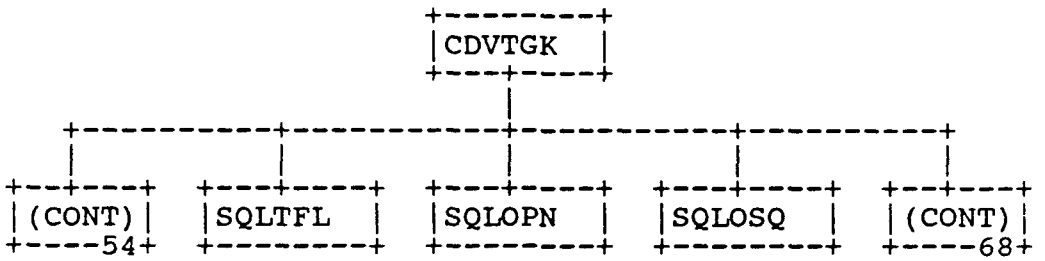

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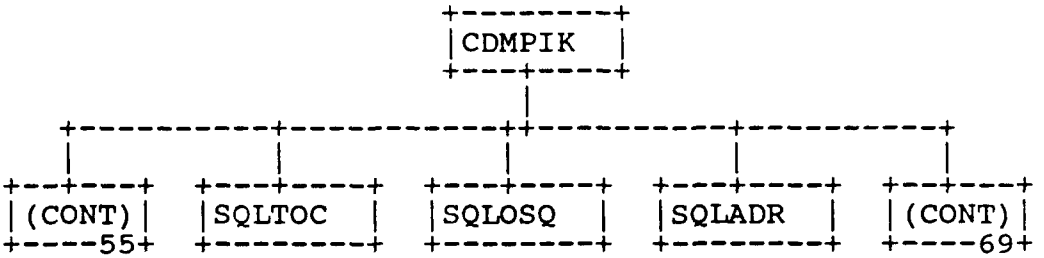

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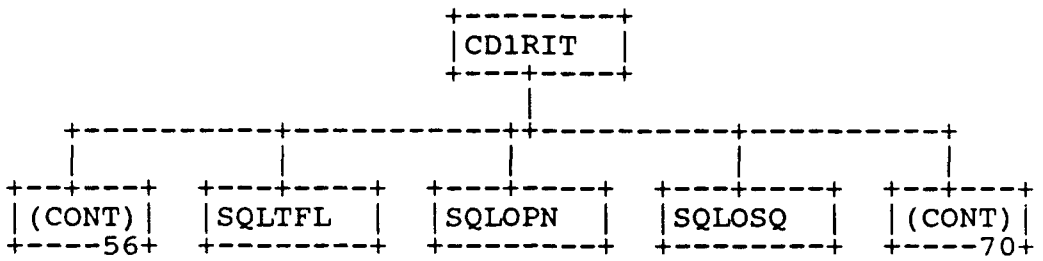

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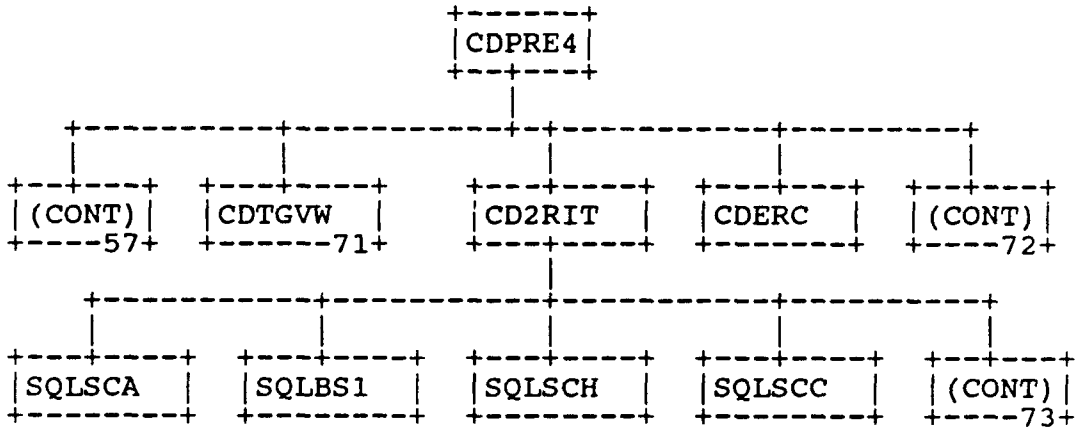
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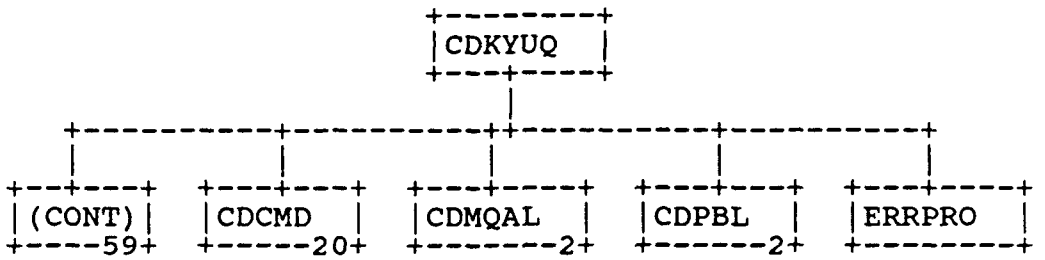
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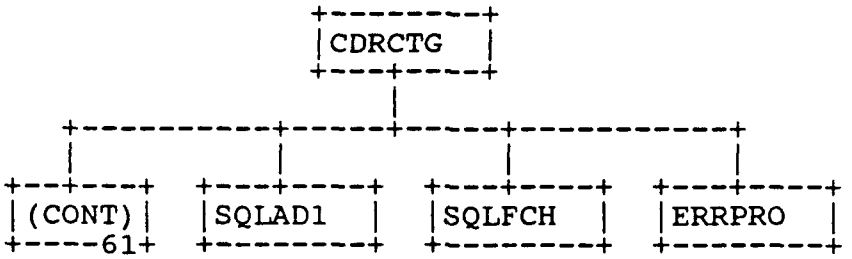

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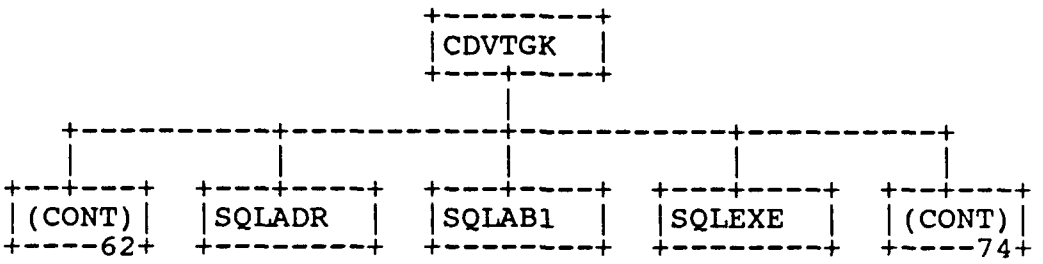

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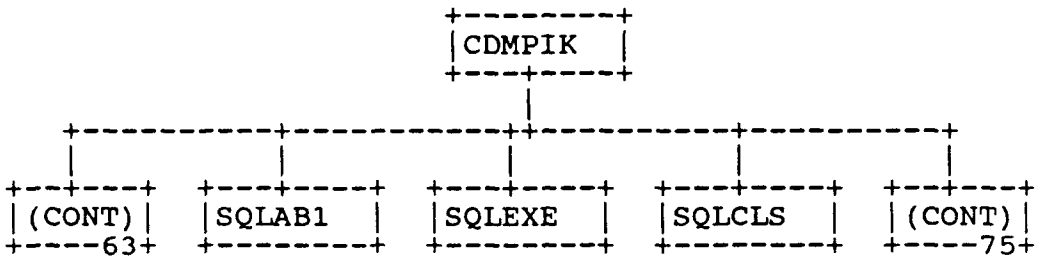

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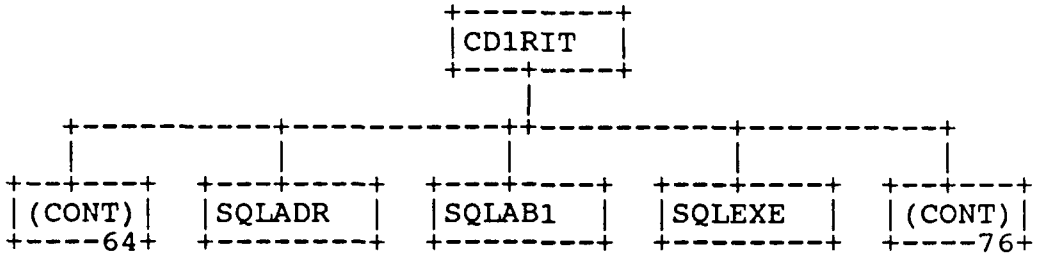

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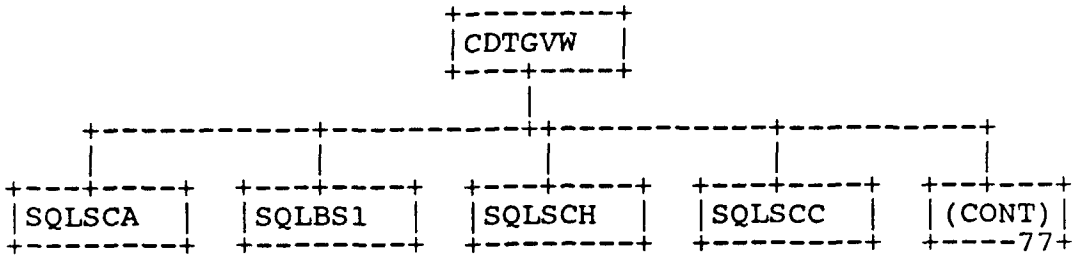

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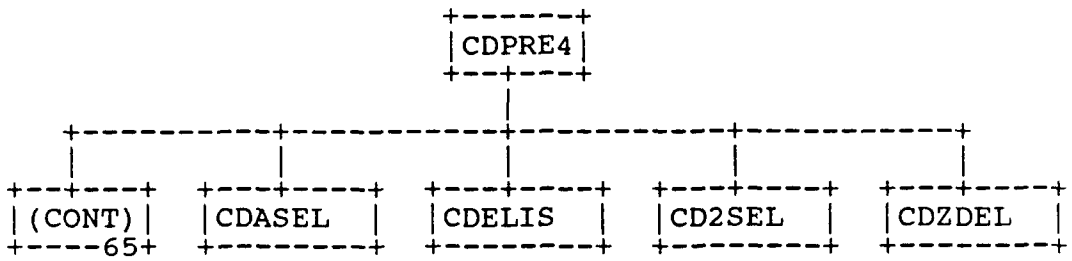

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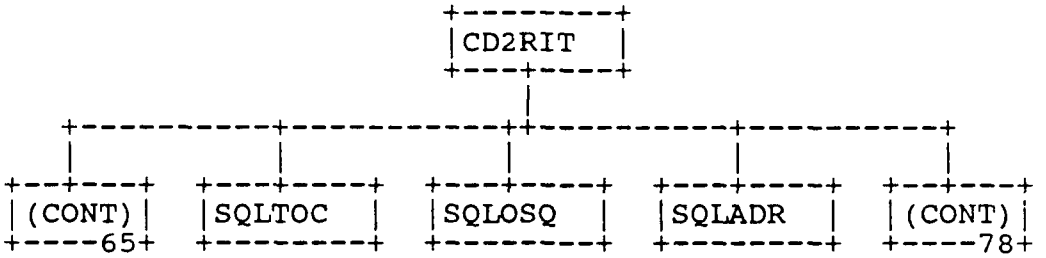

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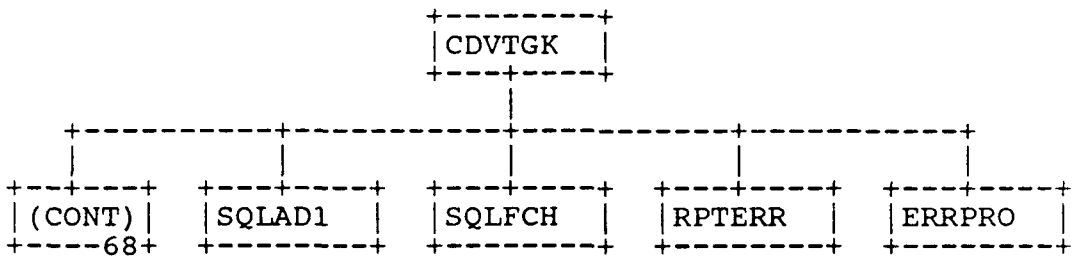

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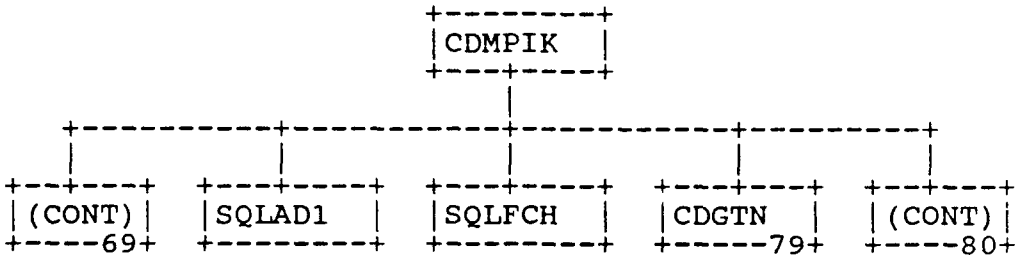

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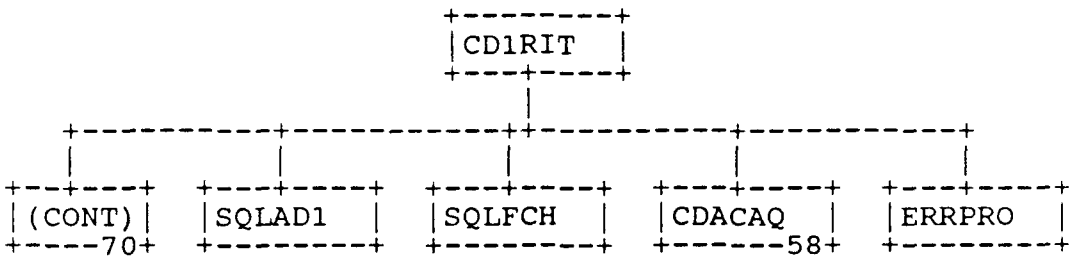

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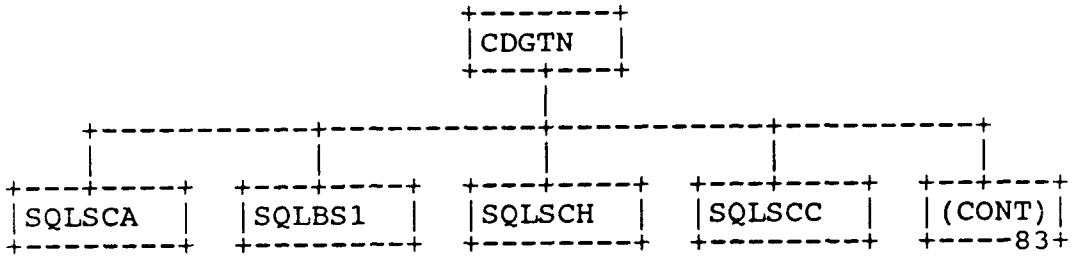

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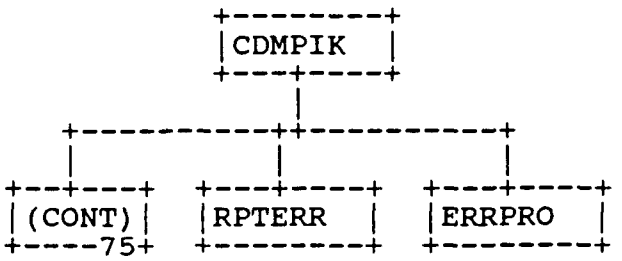

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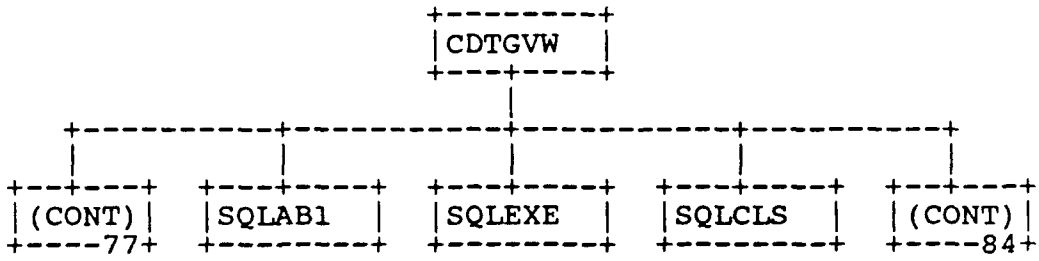

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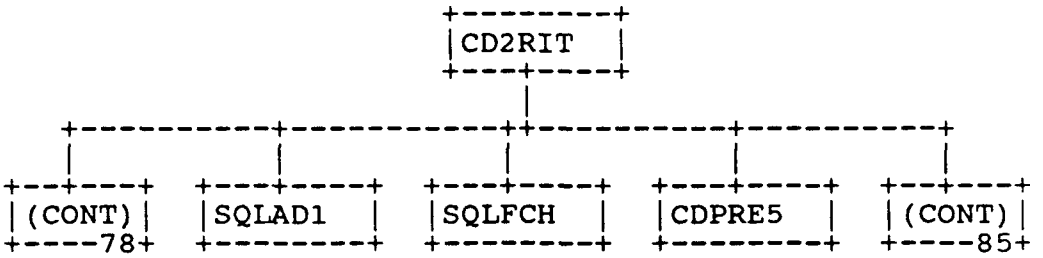

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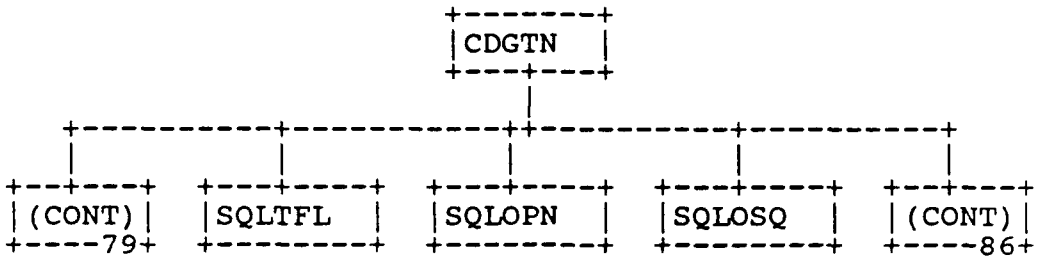

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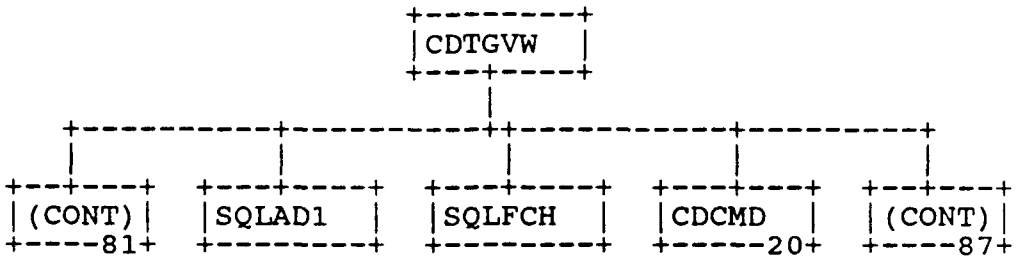

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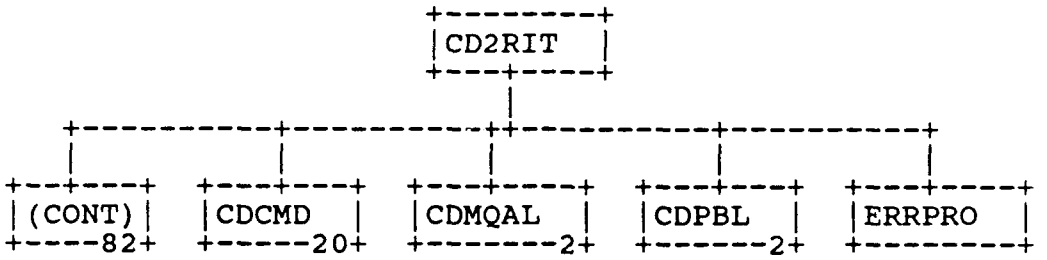

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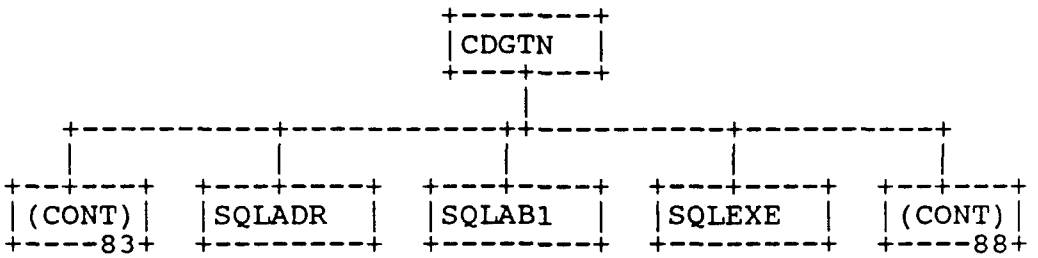

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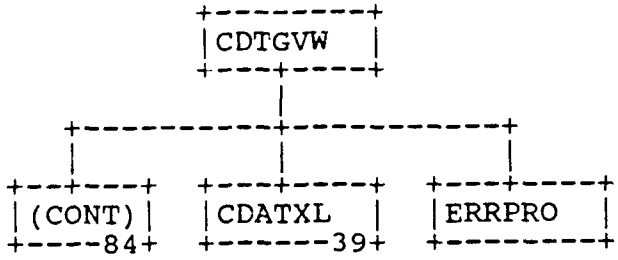

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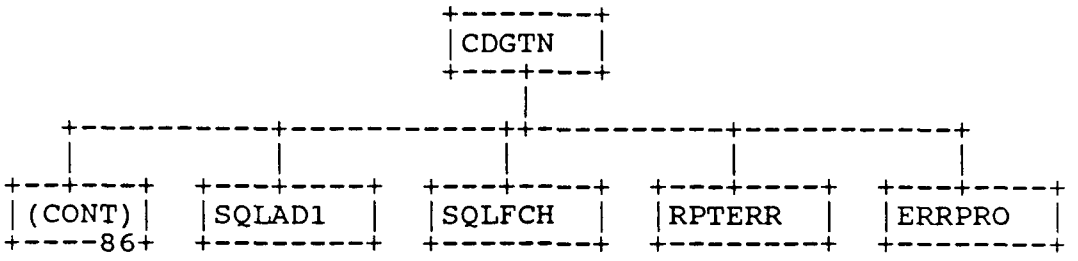

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CDCRIT
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CDERC
CDGTN 79
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CDINEC ...21
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CDKYUQ ...37
CDMPIK ...55
CDMQAL 2
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CDPBL 2
CDPDI 19
CDPRE4.....2
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CDVIEW ...11
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SQLAD1
SQLADR
SQLBS1
SQLCLS
SQLEXE
SQLFCH
SQLOPN
SQLOSQ
SQLSCA
SQLSCC
SQLSCH
SQLTFL
SQLTOC

3.11 Program Listings Comments

This information is contained in the Module Descriptions in Section 3.10.

SECTION 4

QUALITY ASSURANCE PROVISIONS

4.1 Introduction and Definitions

"Testing" is a systematic process that may be preplanned and explicitly stated. Test techniques and procedures may be defined in advance, and a sequence of test steps may be specified. "Debugging" is the process of isolation and correction of the cause of an error.

"Antibugging" is defined as the philosophy of writing programs in such a way as to make bugs less likely to occur and when they do occur, to make them more noticeable to the programmer and the user. In other words, as much error checking as is practical and possible in each routine should be performed.

4.2 Computer Programming Test and Evaluation

The quality assurance provisions for test consists of the normal testing techniques that are accomplished during the construction process. They consist of design and code walk-throughs, unit testing, and integration testing. These tests are performed by the design team. Structured design, design walk-through and the incorporation of "antibugging" facilitate this testing by exposing and addressing problem areas before they become coded "bugs."